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NOVEMBER 1985 VOL. 7 No. 11

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SURVIVAL

GUIDE

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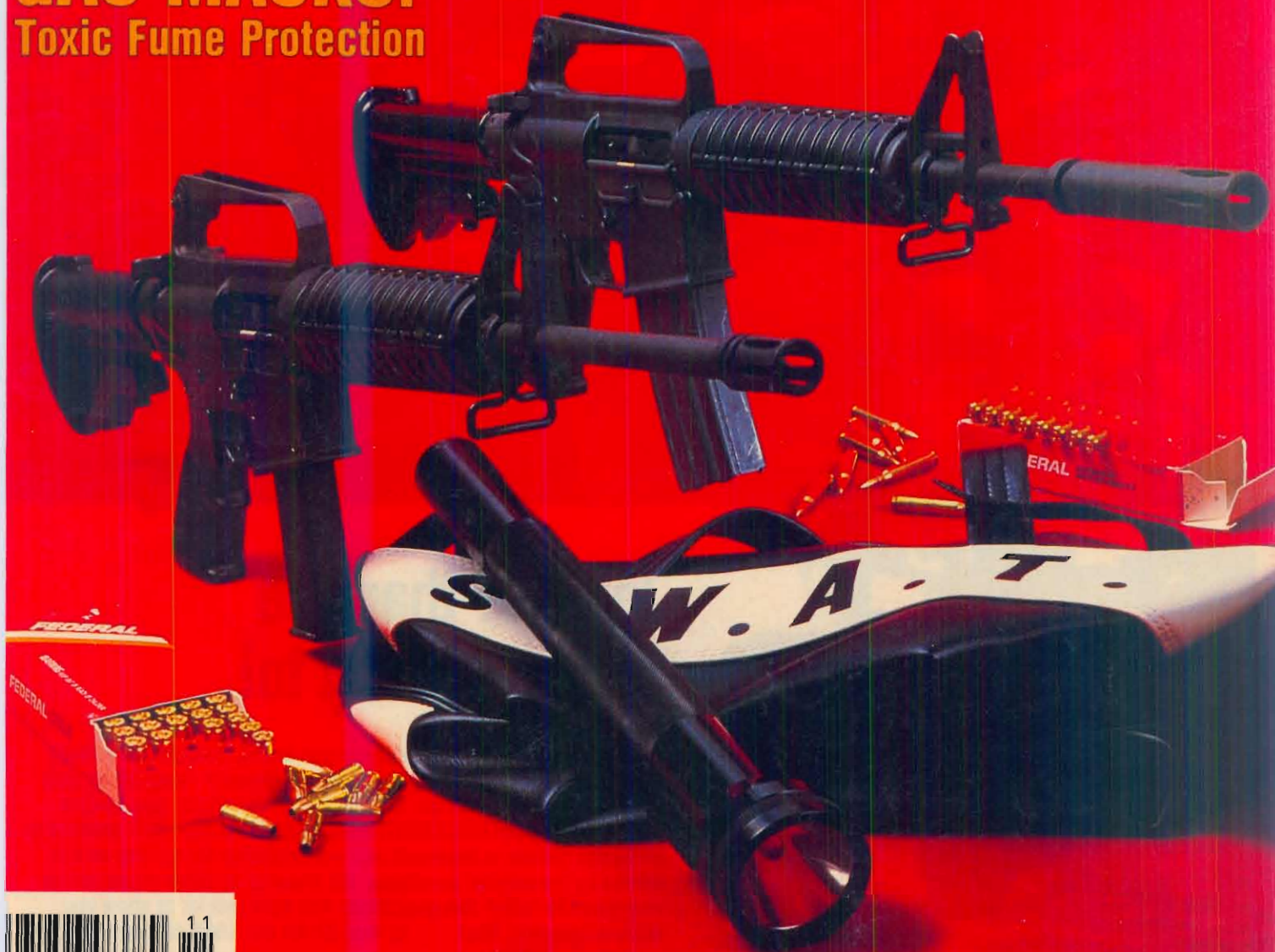
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BATTLE DRESS UNIFORM (BDU)

GENUINE GI

Originally worn in the jungle of Vietnam, the general features of the GI combat battle fatigues are as follows:

Pants—cut full for complete freedom of movement these feature draw-string cuffs and adjustable pull tab waists. For maximum utility, they are constructed with 6 pockets, 2 of which are large belloved cargo pockets, on the thigh.

Shirt/Jacket—also cut full, these rugged versatile fatigues feature 4 pockets (2 breast pockets and 2 huge belloved hip).

Sizes—military waist sizes are XS, S, M, L, XL. Length sizes are regular and long. Not all length sizes are available in a particular style. For best fit, please tell us your waist, chest, inseam and height and we'll try to find the right size for you. Remember that jungle fatigues fit completely different than a pair of jeans.

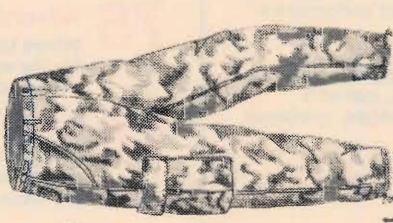
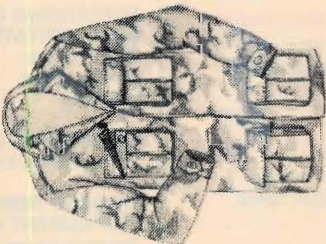
Woodland Camouflage Pattern BDU's—GENUINE GI

These 50% cotton, 50% nylon fatigues are the latest issue to all services. In these Woodland BDU's the military has combined complete utility and freedom of movement into garments made to last for years of hard wear.

The fabric combination of breathable, comfortable cotton combined with the nylon seems to make them indestructible. The seat and knees in the pants, and the elbows in the jackets have been reinforced. The belloved pockets are even roomier than the jungle fatigues that were the predecessor to the BDU.

These are a **best bet** for the hunter, sportsman or outdoorsman who wants clothing that he can depend on season after season. **Brand New.**

Specify: Jacket or Pants \$30.00/each; \$57.50/set



Desert Camo Pattern BDU's—GENUINE GI

These dry desert pattern BDU's are the current issue to the US Rapid Deployment Force who have been trained for warfare in the Middle East. These are designed exactly like the Woodland Camouflage Pattern BDU's described above, complete with reinforced knees and seat. **Brand new. Specify: Jacket or Pants \$34.00/each; \$65.00/set.**

Olive Drab (OD) Green Jungle Fatigues—GENUINE GI

These were one of the first jungle fatigues used in Vietnam. **GENUINE GI** They were phased out in the late 1960's and early 1970's. These 100% cotton ripstop fatigues are currently being manufactured under a government contract to the original military specs. **Brand new. Specify: Jacket or Pants \$30.00/each; \$57.50/set.**

Tiger Stripe Camouflage Pattern BDU's

These are made by a US Government contractor to military specs. The tiger stripe pattern is true. They are reinforced as the Woodland Pattern BDU's above. Regular lengths only (no long). 50% Cotton 50% Nylon.

Brand new. Specify: Jacket or Pants \$34.00/each; \$65.00/set.

Solid Black BDU's

A favorite of SWAT teams, these fatigues were manufactured in the US by a government contractor to military specs. 50% cotton/50% nylon, these are reinforced as the GI Woodland Pattern above. Regular lengths only (no long). **Brand new.**

Specify: Jacket or Pants \$34.00/each; \$65.00/set.

Urban Camouflage Pattern BDU's -

A strikingly different camouflage, our urban camo may be the SWAT alternative to the solid black or woodland camo. The Urban pattern? Well, visualize a leaf or woodland design with the colors being various shades of grey and solid black. Now you can understand why we say it is a striking alternative to the uniforms you've seen.

Our Urban Camo BDU's are durable, easy care 50% cotton/50% polyester fabric and are manufactured in the USA to military specifications. So, the pants have a reinforced seat and knees, the jacket has reinforced elbows. Also featured are: pull tab waist, drawstring cuffs, covered buttons and the attention to every small detail which you've come to expect. **Brand New. Sizes: XS, S, M, L, XL.**

Regular Lengths - Specify: Jacket or Pants \$34.00/each; \$65.00/set
Long Lengths available in Pants only S, M, L. Add \$3.00

Woodland Camouflage Pattern BDU's -

Lightweight, Warm Zone Wear -

100% cotton, Ripstop

One of the loudest complaints voiced by our troops during and after the US incursion into Grenada was that the fatigues they were wearing were too heavy and warm. No wonder - the GI Woodland BDU's are half cotton/half nylon and constructed to be for general use year-round. So, in a warm, humid climate they could seem almost oppressive especially to troops pursuing an activity as strenuous as fighting a war.

After Grenada the US military quickly designed lightweight BDU's for wear in Warm Climate Zones. Kaufman's has secured an over-run of fatigues under consideration for issuance to all troops. Our lightweight BDU's are made in the USA (of course) by a military contractor. They offer all the features of the Woodland BDU's, standard weight. That is, they all have the Woodland Camouflage Pattern and feature reinforced knees and seat, pull tab waist, drawstring cuffs, quality construction, covered buttons, etc. The lightweight fatigues, however, are 100% cotton, woven in a ripstop design. So they are lightweight, cool and comfortable, yet very durable.

Presently our Warm Zone Lightweight Woodland BDU's are available only in regular lengths (no long). However, in time long lengths may become available, so feel free to call our Customer Service Department on our toll-free line to learn about our current inventory. **Brand New. Specify: Jacket or Pants \$30.00/each; \$57.50/set**

Used Camouflage Jungle Fatigue Jackets -

We have a limited supply of used, leaf pattern camouflage fatigue jackets. These are the old style, used in Vietnam, and so are in the 100% cotton ripstop fabric.

All of the jackets we have on hand are size small. These used Camo Jungle Jackets are Grade II's, which means each jacket has been repaired and some of the repairs are very noticeable. However, each jacket is completely serviceable and we have cleaned them after the repairs were made. Kaufman's guarantees your satisfaction so you can buy with confidence. **Sizes: Small only. Length:**

- ☐ **Short** \$9.75/each
- ☐ **Regular or Long** - (Note - longs are very limited. Advise us when ordering if we may substitute a regular length if we are sold out on longs) \$12.75/each

Used, OD Green Jungle Fatigues -

limited supply available - exactly as above, in excellent condition, cleaned and repaired as necessary.

- ☐ **Pants**
- ☐ **Short length - small or medium waist** \$18.75/each
- ☐ **Regular or long length - small or medium waist** - (Note - long lengths are in very short supply. Advise us if you can accept a regular length if we are sold out on longs. Large and extra large waists are not available) \$22.75/each

- ☐ **Jackets - Only size extra small and small are available**
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US Military Issue -

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Specify size: S7; M7 1/2; L7 1/2; XL7 3/4.

- ☐ **Leaf Pattern camouflage, GI ripstop; 100% cotton as used in Vietnam; Genuine GI** **\$14.00/each.**
- ☐ **Woodland Pattern camo, army's latest issue; 50% cotton/50% nylon Genuine GI** **\$12.25/each.**
- ☐ **Desert camouflage; just issued to the U.S. Rapid Deployment Forces. 50% cotton/50% nylon; Genuine GI** **\$12.25/each.**
- ☐ **Olive Drab (OD) Green; 100% cotton GI ripstop as used in early Vietnam. Genuine GI** **\$14.00/each.**

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- ☐ **Tiger Stripe Camouflage Pattern**
- ☐ **Woodland Camouflage Pattern**
- ☐ **Olive Drab Green (OD)**
- ☐ **Desert Tan**
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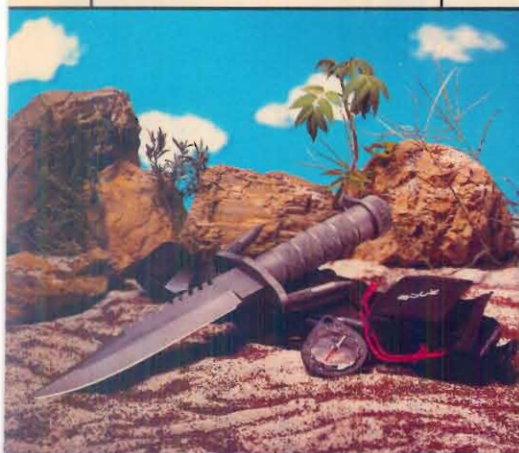
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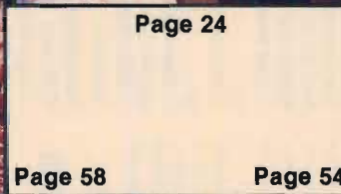
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AMERICAN SURVIVAL GUIDE

VOLUME 7, NUMBER 11 NOVEMBER, 1985



Page 24



Page 58

Page 54

5 Survivalist Directory

A confidential listing for survivalists seeking communication.

6 To The Point

Brains, know-how, gear and people make the job go.

8 Survival Line

Nuclear security, gun politics, women in the Army.

10 Book Reviews

Historical supply catalog; installing locks and alarms.

16 NEST

A top secret U.S. force deals with nuclear terrorism.

20 AR-15 9MM

Colt's 9mm NATO variant of the AR-15 .223 carbine.

24 Splinting

Guidelines for handling broken arms and legs.

26 Freshwater Foraging

Part 2 of a series on fishing gear and techniques.

28 Survival Catalogs

A list & descriptions of survival supplies mail order dealers.

30 How To Stay Warm

First of a two-part series on Hypothermia and how to avoid it.

34 Start A Fire

Equipment for lighting fires under primitive conditions.

52 The Oneida Eagle

A 'compound recurve' bow combining looks, red-hot performance.

54 Jerky

Drying meat prevents decay, makes it lightweight, nutritious.

56 Gas Masks

What's available to protect you against poisonous fumes.

58 Survival Knives

State-of-the-art implements from well known cutlery firms.

66 Mail Call

Letters from the survivalist community.

73 Classified Ads

Messages of interest to survivalists.

74 Terra Vault

A hard plastic 'root cellar' or disaster shelter.

75 Advertisers Index

Where to look for the equipment you want.

76 Natural Fibers

Where there is vegetation there are weavable fibers.

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PUBLISHER
Tom McMullen

EDITORIAL DIRECTOR
Bob Clark

EXECUTIVE EDITOR
Payton Miller

MANAGING EDITOR
Jim Benson

SENIOR FIELD EDITOR
Dave Epperson

CONTRIBUTING EDITORS

Douglas Blevins
Richard Colagiovanni
William J. Elliott
Hal Gordon
Durwood Hollis
Tony Lesce
Bill London
Duncan Long
Michael Pietrantonio
Joyce Tintjer
Lee Upchurch

PHOTOGRAPHIC SERVICES
Martin Hasa

GRAPHICS

DESIGN DIRECTOR
G. Wm. Tietgen

ART DIRECTOR
Vinh Chung

DESIGN ASSISTANT
Kay Green

ADVERTISING

ADVERTISING SALES MANAGER
Bruce Bogart

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Gary Mattson
John Nething
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ADVERTISING COORDINATOR
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SUBSCRIPTION & FULFILLMENT MANAGER
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COVER:

The Colt AR-15 9mm Carbine, left, is the latest addition to the M16/AR-15 family of weapons that includes the AR-15 .223 Caliber Carbine, right.

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SURVIVALIST DIRECTORY

THIS IS A CONFIDENTIAL listing of survivalists who wish to become known to others of like mind. *American Survival Guide* will accept properly coded mail, and forward it to the coded addressee, without charge. *American Survival Guide* accepts no responsibility for the contents of these confidential survivalist communications:

ASG 1132

Edmonton, Alberta, Canada, responsible, right-wing, Christian family that takes a realistic approach to survival, not a fanatical approach, interested in communicating with similar families in Alberta, British Columbia, Montana and Idaho.

ASG 1133

Miami, Florida, survival consultant wishes to contact survivalists in greater Miami and central and north Florida, south Alabama and south Georgia.

ASG 1134

Wichita, Kansas, seeks contact with self-reliant people in Hutchinson-Topeka-Wichita area who wish to establish a group.

ASG 1135

Central Texas, small survival group interested in communication with other survivalists statewide.

ASG 1136

Albany, Georgia, desires contact with other survivalists in the state for purpose of forming a group.

ASG 1137

Toms River, New Jersey, interested in communicating with other survivalists in this vicinity to exchange information.

ASG 1138

Columbus, Georgia, small, qualified group interested in new personnel or mutual assistance pact with Georgia or Alabama group.

ASG 1139

Riverside, California, 16-year-old would like to communicate with other young people in U.S. and other countries who are interested in survival and self-reliance.

ASG 1140

Uniontown, Pennsylvania, survivalist and avid outdoorsman seeks contact with same to form survival group.

ASG 1141

Bryans Road, Maryland, would like to make contact with survivalists in the Maryland, Virginia and Washington, D.C. area.

ASG 1142

Spokane, Washington, wish to contact survivalists in this area to form a group.

ASG 1143

Fort Smith, Arkansas, group seeks survivalists who believe preparedness is the key and who live in this vicinity. No gun-waving fanatics.

ASG 1144

Cloverdale, Indiana, wishes to communicate with survivalists in surrounding states.

Address response letters as follows:

American Survival Guide
ASG 0000 (Code Number, As Above)
2145 West La Palma Avenue
Anaheim, CA 92801

Your letters will be forwarded to persons listed within two days of receipt. *American Survival Guide* accepts no responsibility for loss or delay of inquiry letters. Contact letters that do not carry the appropriate code number will be discarded.

Those who wish to be added to the directory listing, please send names and addresses to *American Survival Guide*, 2145 West La Palma Avenue, Anaheim, CA 92801. The listing is free. ●

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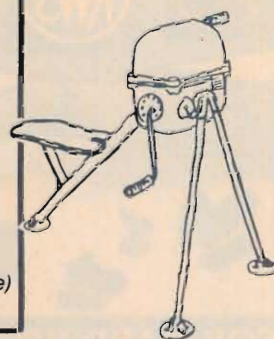
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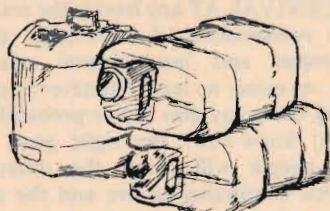
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Current issue collapsible canteen, same design as used in Vietnam. Canteen is molded flexible plastic, olive drab, with 3-piece cap. OD nylon canteen cover is Vietnam-era issue and features pile lining, water purification tab pocket, detachable shoulder strap and belt keepers. Great for hunters, campers and hikers as well as collectors.

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TO THE POINT

Brains, know-how, the right gear, and good people make the job go . . .

SURVIVAL AT any level is the result of a combination of knowledge, skills, equipment and interpersonal relationships, no more, no less. Whatever happens among the many dire future probabilities, brains, know-how, the right gear, and good people will mean the difference between continuing to live and the alternative end.

Knowledge means *thorough* knowledge of a specific subject. How many times have you watched the "expert" whip a granny knot into a tiedown rope, then say smugly, "There!" You know and I know that infernal granny will slip. Our expert probably had read the *Bluejacket's Manual* or the *Boy Scout Handbook*, but had never practiced the knots detailed therein. What he needed to keep that load from spilling was a square knot—or more likely a clove hitch.

The point is, knowledge is useless until the skill opened by that knowledge is fully developed and put into effective use.

Since I've become a country gentlemen, rather than a magazine editor, I've been forced by the nature of the land, the climate and pure human necessity to use knowledge that was only hazy in my mind. I should have read more, learned more and *practiced*. In addition, I'm using skills that I had learned and developed long ago, but had laid aside and not employed because they were not needed temporarily—digging ditches and welding, to cite but two.

I've found that such skills return to hand quickly. They're like swimming: once you learn, you never forget. The key is to learn in the first place. Ditch digging and welding are survival skills, just as much as in accuracy with a 7.62 NATO assault rifle.

In addition, I've been using my neglected knowledge of nutrition and health, not because it is the current fad, but of need. I have been eating well, and working really hard. I tend to my vitamin and mineral intake, supplementing natural in-food nutrients with a pill in order to be sure I get the full treatment. There are no catering trucks coming 'round to the parking lot to deliver that mid-morning sweet roll or sausage-and-egg

sandwich, and there are no nearby restaurants for stuffing myself at an "editorial" lunch. The good, plain food, plus the heavy physical work, has trimmed my six-foot, four-inch frame from 243 to 222 pounds—and still counting down. And my flab is quickly turning to hard muscle once again. I had learned about nutrition and healthy eating habits long ago, but, I regret to say, hadn't practiced them. One thing each individual needs to survive anything is health, and that starts with nutrition.

The residents here—myself included—use summer months to make ready for winter, in order to survive the cold and snow. It is no fool-around matter. Recently, I helped to realign a bridge that had been knocked askew by a massive surge of spring snow-melt runoff. I used my boyhood knowledge of blocks and falls, and my adult knowledge of four-wheel-drive digging and jacking and winching, plus a little high school physics to pop that bridge back into place over the creek. I couldn't have been of aid if I had only read about logging and four-wheeling. It was the practice that made the knowledge skills of value.

The equipment necessary to move several tons of wooden bridge included chains, nylon snatch straps, hydraulic jacks, prybars, and a 4WD pickup truck operating in low range, its tractive effort multiplied by block and tackle. We could have done the job without these tools, yes, but the task would have required many more men, much more time, and the risk would have been greater.

The men had the know-how, the skill, the tools and the neighborliness to make the job go.

The interpersonal relationships come in the form of friendships, working when called upon, and teamwork. Sharing tools and muscle, doing things for one-another makes living—survival—that much easier. Here, we need each other. This loose community cannot operate any other way. I have come to think of my neighbors as *my* survival group. If we can work together in good times, surely we can take on whatever any future offers. —Dave Epperson.

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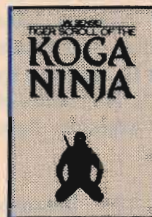
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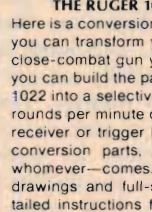
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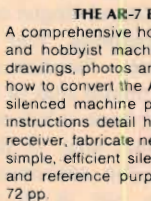
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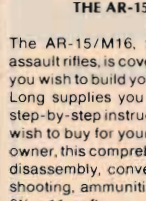
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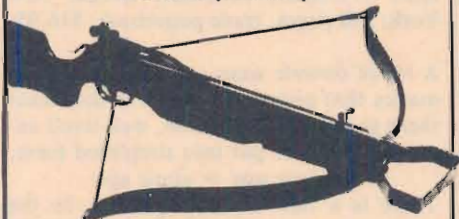
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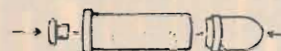
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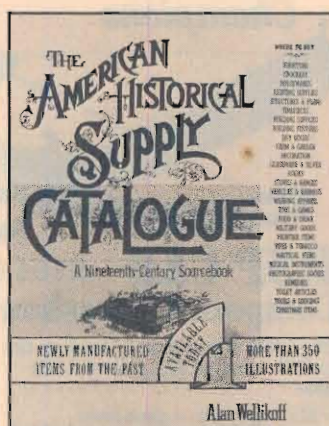


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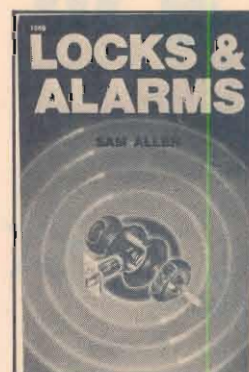


The American Historical Supply Catalogue,
A Nineteenth-Century Sourcebook, by
Alan Wellikoff; Schocken Books, New
York; 240 pages, trade paperback; \$16.95.

A lot of doomie wags are fond of mathematics that prove whatever it is they want them to say. One common, well-loved expression, is here put into simplified form:
nuclear war = stone age

There is a flaw in this equation. In the stone age, people had stones, sticks, and bones to work with, occasionally a sinew. They died pretty quickly, wallowing in dirt, disease and ignorance. And what information could be passed along went from mouth to ear via whatever primitive language the stone-age people used. Conceivably, following a nuclear war, people will communicate in most of the ways they used during preapocalypse times—the verbal and written word—and there will be lots of books laying around, ready to reveal secrets undreamed of by our stone-stroking forebears. Consider, *The American Historical Supply Catalogue*, a Nineteenth-Century Sourcebook, by Alan Wellikoff. You won't find the recipe for gunpowder here, but you will find hundreds of addresses for places where you can still lay your hands on practical machines that are simple enough in design that they could be fixed by an average guy with average tools, if it came to that. The machineries of the wind driven water pumps for sale could be reasoned through by the simplest shade tree mechanic. The ice cream maker is a delight in modest functional form. There are horse carts and horsefarming tools, and accurate windup timepieces, even kits to build frontier firearms, all without the benefit of the microcircuitry that's so vulnerable to even the slightest taste of the bomb's Electro Magnetic Pulse. More than 350 precise illustrations accompany Wellikoff's folksy explanations, in a book with far less mumbo-jumbo than the venerable

Last Whole Earth Catalog. Some of the places even, presumably, accept Visa and Master Card, but everyone should, of course, inquire first and purchase as soon as possible. Those mathematicians are, after all, predicting a cold nuclear winter.



Locks & Alarms, by Sam Allen; TAB Books Inc., Dept. ASG, Blue Ridge Summit, PA 17214; 344 pages, paperbound; \$15.95.

This is a good sourcebook for the installation, maintenance and repair of locks and alarm systems for the do-it-yourselfer. The book's introduction notes that burglaries occur every 15 seconds in the United States and \$400 million worth of possessions are stolen by burglars each year. "The highly effective professional thief doesn't usually bother with ordinary house burglary," the author states. "Most homes are burglarized by amateurs in need of fast money. A few simple security measures will discourage this type of thief, because he is looking for an easy target. If you have many valuable possessions or live in a high-crime area, you will need to take more extreme security measures to protect your home." The book is divided into three sections. Section 1 deals with the basics of home security and describes various devices you may want to employ to make your home more secure. Section 2 explains do-it-yourself techniques for lock repairs, installation, rekeying and burglar alarm installation. Section 3 discusses professional and advanced techniques for home or automobile security. The book has chapters on a home security survey, locks, doors and windows, burglar alarms, lighting, home safes, closed-circuit TV, the theory of lock operation, tools needed, lock installation and repair, automobile security, burglar alarm installation and automobile locks. Additionally, the author also has appendices on pin charts, lock functions, key cut gauges and a list of suppliers of locks and security products. ●

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1	Green Peas (whole)	45
1	Navy Beans	45
1	Rolled Oats	25
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1	T.V.P. (textured vegetable protein)	29
1	Milk (non-instant), Not nitrogen packed	30
1	Raw Honey, Not nitrogen packed	60
1	Alfalfa Seeds (for sprouting)	7

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Read and use this fine magazine to learn all you can. They are also one of the few left. We all need your support so we can continue to serve you.

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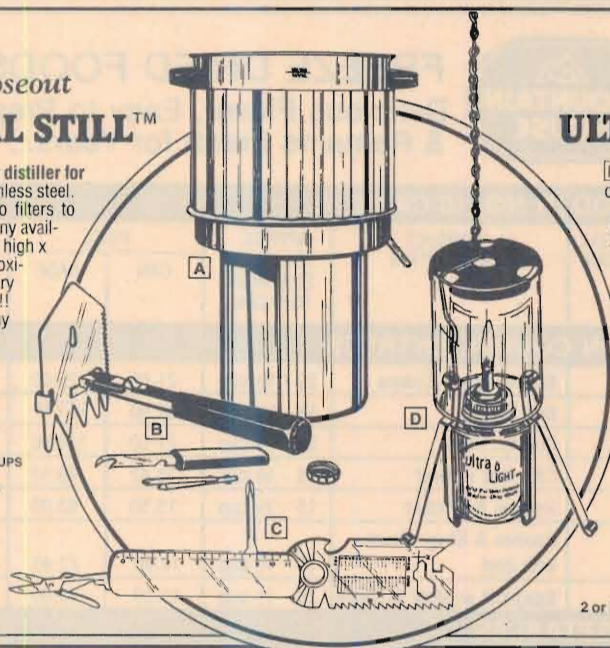
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 2 or More \$14.00 each
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SPECIAL PURCHASE!

High Quality... High Impact 18 GAL. PLASTIC BARRELS

As Low As
\$13.50 Each
 Delivered



Storage for:
 • Grains
 • Water • Equipment

- Made of 1/2" high impact plastic
- 10" screw on lid with air tight seal
- 23" high by 18" diameter neoprene gasket
- Two heavy duty handles
- Food grade - used once for mushrooms

One Barrel

\$17.50 + \$4.50 S&H

5 Barrels **\$89.00**

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20 Barrels **\$299.00**

PPD 48 states

10 Barrels **\$159.00**

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100 Barrels **\$1350.00**

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• Straw port for drinking without removing mask

- Filter canister for all standard gases
- Comparable to US Army current issue at almost half the price

ONLY \$39.95

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G. I. SANDBAGS

Current issue. O.D. 1" x 2" woven polypropylene. Tie closure. Dozens of uses.

10 for

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20 for

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100 for

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Start a Fire With One Hand SPARK-LITE™



The new Spark-Lite™ is the smallest, most effective, waterproof fire starter on the market today. Developed for the U.S. Army in the event only one hand was available to start a fire. It is small enough to fit inside hollow handle knives. Each set of flints will start over 1,000 fires.

Spark-Lite & Tinder

\$4.95

Plus \$1.50 S & H

Extra Tinder... **\$1.95**

Plus \$1.50 S & H

Both for **\$7.95**

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This Knife May Save Your Life

SURVIVAL KIT KNIFE



A Complete Survival Kit

Watertight hollow handle contains the four essentials for survival: a 20" wire saw for shelter building; matches for fire making; hooks, line, needles and spare wire for food gathering; and is sealed by a liquid-filled luminous compass for direction finding. OR add what you want! 6" stainless steel blade; 4 1/2" aluminum alloy handle; wt. 9 oz. with leather sheath and tie closure.

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A.S.G. SPECIAL \$475⁰⁰
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RADIATION BLOCKER POTASSIUM IODINE TABLETS

STOP thyroid damage from radiation. Full details page 96 "Nuclear War Survival Skills." New supply — order while still available.

98 Tablets in Sealed Bottles **\$22⁵⁰** 2 or More \$19.95 each
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KATADYN POCKET FILTER

HEALTHFUL DRINKING WATER ANYWHERE?

YEP! We proved it to ourselves with a 3 week field test to Central America.

KEY POINT: The Katadyn Pocket Filter is the only really professional portable water purifier on the market today. Designed for Heavy Duty, extended use under the rotten conditions that often exist in field situations, where all kinds of raw water supplies will be encountered, where the purifier must produce large amounts of safe water quickly over long periods of time and where equipment failures and vague promises about "filter capacity" or "filter life" can't be tolerated. **HOW IT WORKS:** Simple mechanical principle of microfiltration through a ceramic "SIEVE" whose pores (0.2 microns) are smaller than the smallest known free living organisms. **IT WORKS — WE USE IT! WHO/WHERE:** The purifiers have been manufactured in Switzerland for over half a century. Standard issue with the International Red Cross and the Armed Forces of many nations — **ESSENTIAL EQUIPMENT FOR SURVIVAL KITS.** **SIZE:** Compact — about the size of a two-cell flashlight. **WEIGHT:** only 23 ozs. **LIFE:** Many years — clean by brushing off. **EPA REGISTRATION:** Yes, #39444-1. Pocket Filter comes with a 20 inch suction hose fitted with an intake strainer to eliminate coarse debris, a cleaning brush and instructions all in a zippered soft carrying case.

**NOW ONLY
\$149⁰⁰**
PPD 48 states

#PF100 (Reg. Price \$170.00 ea. + \$3.00 UPS)

2 Filters Only \$275.00 PPD 48 states



FREEZE DRIED FOODS

Delicious Flavor, Easy to Prepare
& Remains Fresh for Years...

FOOD IN NO. 10 CANS

TOTAL QUAN.	PRODUCT DESCRIPTION	APPROX. RECONST. SERVINGS PER/CAN	PRICE		TOTAL COST
			CAN	CASE	

MAIN COURSE ENTREES

	Beef & Rice w/Onions	20 - 1/2 cup	21.00	126.00	
	Beef Stew	18 - 1/2 cup	22.90	137.40	
	Chicken Stew	21 - 1/2 cup	21.50	129.00	
	Chili Mac w/Beef	20 - 1/2 cup	16.42	98.52	
	Noodles & Chicken	16 - 1/2 cup	15.50	93.00	
	Noodles & Strog. Sauce with Beef	16 - 1/2 cup	12.90	77.40	
	Spaghetti w/Meat & Sauce	19 - 1/2 cup	15.50	93.00	

VEGETABLES

	Corn	20 - 1/2 cup	15.95	95.70	
	Green Peas	22 - 1/2 cup	15.95	95.70	

FRUITS

	Apples	14 - 1/2 cup	21.90	131.40	
	Peaches	12 - 1/2 cup	21.90	131.40	
	Strawberries	8 - 1/2 cup	21.90	131.40	
	Fruit Nuggets	16 - 1/2 cup	10.00	60.00	

BREAKFAST COURSES

	Eggs w/Butter	27 - 2 eggs	25.50	153.00	
	Cheese Omelette	24 - 2 egg	33.75	202.50	
	Granola* with Milk* & Blueberries	22 - 1/2 cup	27.40	164.40	
	Hash Brown Potatoes*	28 - 1/2 cup	10.50	63.00	

SNACKS AND BEVERAGES

	Nut Chocolate LURPS® cashews*, chocolates*, peanuts*, freeze dried raisins	45 - 1/4 cup (dry)	32.00	192.00	
	MT. HOUSE Crackers*	Approx. 70	9.45	56.70	
	Butterscotch Pudding	91 - 1/2 cup	15.00	90.00	
	Chocolate Pudding	80 - 1/2 cup	15.00	90.00	
	Banana Cream Pudding	91 - 1/2 cup	15.00	90.00	
	Cheddar Cheese Spread	5.8 lbs.	30.75	184.50	
	Orange Drink	105 - 8 fl. oz.	13.75	82.50	

Here's how to order your Mountain House Freeze Dried Foods...

Please order in multiples of six. There are six No. 10 cans per case. You may mix a variety of different foods in a case, just order in multiples of six. A good example: 3 entrees, 1 fruit, 1 vegetable, 1 breakfast, (six items total).

TRY MOUNTAIN HOUSE'S FREEZE DRIED FOODS SAMPLE PACK

Assorted freeze dried foods in foil pouches, designed for trial and other specialized uses. It's the same food as that in the No. 10 cans intended for long-term storage.

Try Some!

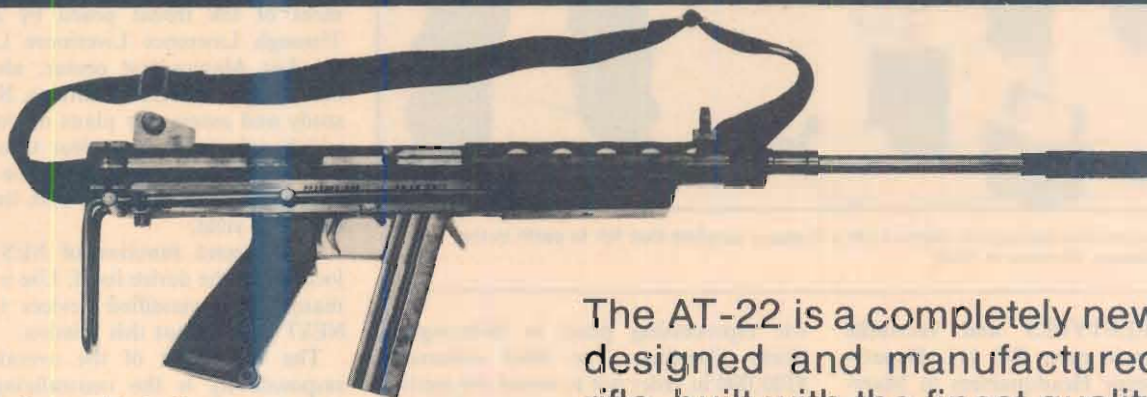
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SEMI-AUTO .22 LR CARBINE



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Super Secret: NEST

Nuclear terrorism has been recognized as a very real threat by the U.S. government . . .

By Michael Pietrantonio



NEST members remove radioactive debris from a Russian satellite that fell to earth in the Canadian Northwest Territory in 1978.

THE TELETYPES and facsimile machines in room BO 111, Department Of Energy Headquarters in Maryland clattered to life. It had been only 15 minutes since a "blueprint" was sent down the same lines to Los Alamos, New Mexico, and the Lawrence Livermore Laboratory in California.

At those locations the top atomic scientists in the country had analyzed the diagrams and run computer projections. The results were coming in now. The top ranking personnel in room BO 111, also known as the Emergency Action Coordinating Team (EACT) room, now had their answer. The device in the "blueprint," an Improvised Nuclear Device (IND)—in effect a homemade atomic bomb—could indeed work. The team in the EACT room began to earn their pay.

The above is not an opening to a new suspense novel. This incident, along with a number of others, has already happened. The circumstances mentioned above came about as part of a \$30 million dollar extortion threat against New York City in June 1975. In the actual event plans of a device were all the extortionist had. He was never caught.

In 1979 another incident potentially of a far more serious nature, and the first such incident to actually involve the use of nuclear materials, occurred. One hundred fifty pounds of Lowly Enriched Uranium (LEU) were stolen from the General Elec-

tric reprocessing plant in Wilmington, North Carolina. The thief demanded \$100,000 in order not to reveal the method by which the LEU was stolen. By itself LEU is not suitable for bomb making. However LEU can be enriched to a level of over 6 percent Uranium 235, which then can be used in the fashioning of an atomic weapon. In this case the extortion attempt was made by a dissatisfied former G.E. employee who had neither the equipment nor the desire to enrich the LEU. He was caught and sent to prison and the LEU was recovered. Had the threat come from an organized terrorist group, or a group operating with the secret backing of a radical government, the story could have had a much different ending.

Nest—Nuclear terrorism has been recognized as a very real threat by the United States government for a number of years. In an effort to cope with this threat, the United States under President Ford, organized a super secret unit whose mission is to deal with such an eventuality. The unit is known as the Nuclear Emergency Search Team (NEST), and is still one of the most sensitive of governmental operations.

The NEST office was organized in response to two separate stimuli. The first was the PLO terrorist attack during the 1972 Olympic Games in Munich. This action by the PLO had a sobering effect on

the U.S. government which began to realize that organized international terrorism could strike anywhere and at any time. The widely held attitude that the U.S. was immune from such attacks, or at the worst, would face only minor incidents such as airline hijackings was shattered by the events of Munich.

The second stimulus was the realization, prompted in part by James Schlesinger, then chairman of the Atomic Energy Commission, that the ability to produce crude atomic weapons was now available to any well financed group. Only a very basic understanding of the technology was necessary to build a device. No longer was a Manhattan Project required to build a bomb. Books available in any library and documents sold by the U.S. government itself, contain all of the knowledge necessary for the building of a crude but workable atomic weapon.

Missions—The NEST office has been given three missions. The first is the assessment of the threat posed by an IND. Through Lawrence Livermore Lab, and the Los Alamos test center, along with other atomic research locations, NEST will study and assess any plans or documents which accompany a nuclear threat. They will determine whether or not the device is capable of working, along with its possible explosive yield.

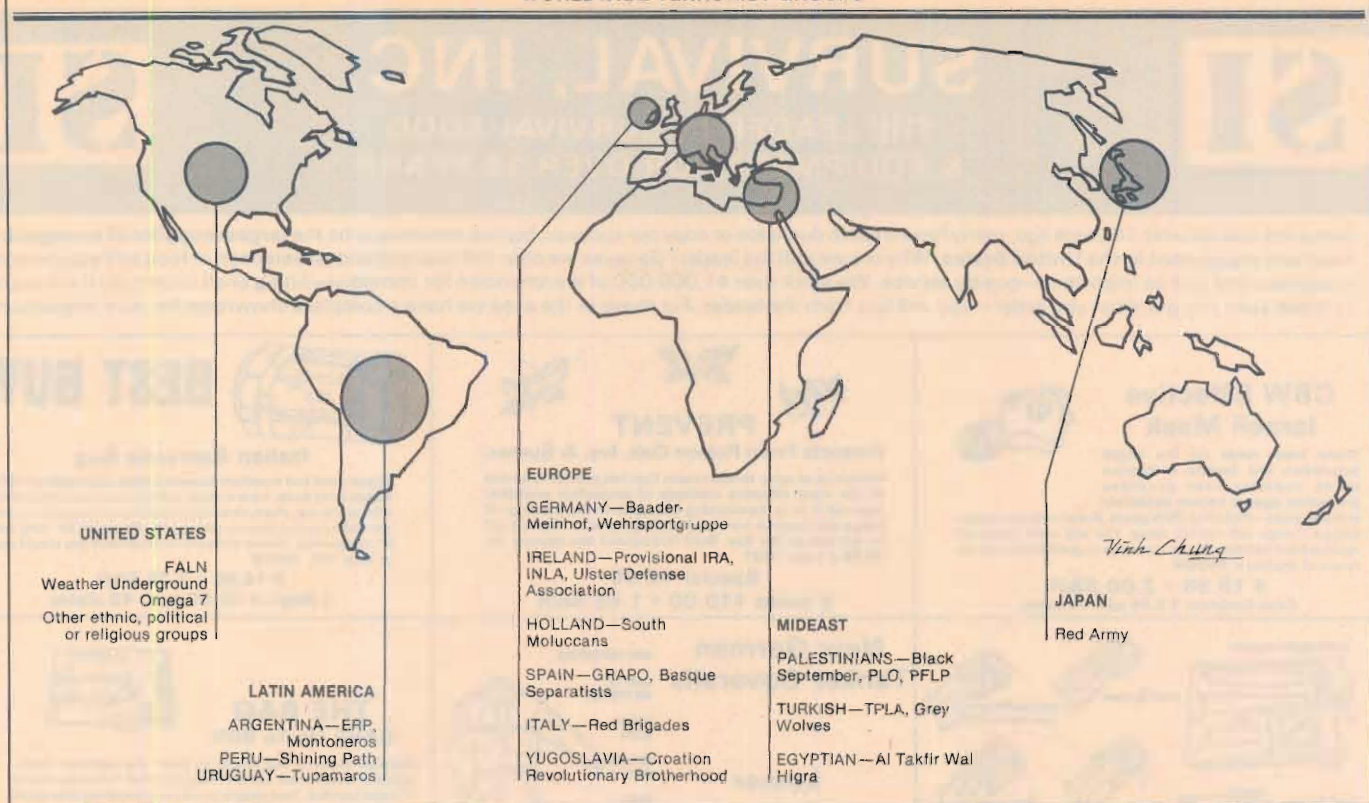
The second function of NEST is the locating of the device itself. Use is made of many highly classified devices to enable NEST to carry out this mission.

The third part of the overall NEST responsibility is the neutralizing of the device once it has been located.

Just how serious the missions of NEST and the threat posed are taken by the U.S. government can be seen by the budget allocated to the NEST office. In 1974, the year it was created, NEST had a budget of \$1.5 million. By 1981 the annual budget of the NEST office was \$50 million.

As the budget of the NEST office was increasing so were the number of nuclear threats being received. Between 1970 and 1980, 60 nuclear related threats were received by the FBI. From 1975, the first operational year of the NEST office, and 1980, NEST was called upon at least five times to take part in operations conducted from San Francisco to Boston. In 1976 the year of the BiCentennial, the prospect of a nuclear threat was taken so seriously that NEST began to map out all radiation source locations in the Washington, D.C., area. This was to insure that time would not be wasted checking out radiation coming from common sources such as hospitals and factories, should a threat have been made.

Terrorist Types—Those who would threaten use of nuclear terrorism can be broken down into three basic categories. 1) Those with political motivations, 2) those with criminal motivations, and 3) the



psychopath with no outwardly visible motivation other than a desire to destroy.

Ironically those groups or individuals utilizing nuclear terrorism for political ends are perhaps the easiest to deal with. Their goals could range from attempting to free some of their comrades from jail, to the political recognition of their group or cause, or in the case of a group like the PLO, the establishment of a Palestinian state.

Political—The politically oriented terrorists are the most likely to actually possess an atomic device. The PLO is an example of such a group. The finances of the PLO today amount to hundreds of millions of dollars per year. Some of the money is made available by radical governments such as that of Libya. Some is protection money paid by the moderate Arab states to avoid terrorist incidents, and some is earned through legitimate investments made through front organizations in the world economy. The PLO has available the funds and technical talent to construct or steal a nuclear device. But using it could bring retaliation.

Criminal—The nuclear terrorist with criminal motivations, (generally blackmail), is a somewhat different story from the political terrorist. While an individual or group seeking to blackmail a government, city, or corporation, is less likely to actually possess a bomb, he, or they, are more likely to use it if they do have it. This is because there is very little chance of any sort of retaliation by the victim.

Psycho—Think for a moment of a

Charles Manson with a bomb and you immediately realize the potential threat of this type of terrorist. It is nowadays fully possible for one person to construct a low level atomic device. The hardest part, (though by no means impossible) is securing the nuclear material. Should this eventuality ever come about, chances are there will be no notes or demands, threats or pleas, just an explosion.

Alternatives—Nuclear terrorism is not limited to bombs. Depending upon the nuclear material available to the terrorist options other than bombmaking present themselves.

Plutonium, the key element in the manufacture of atomic bombs, is the most toxic substance known. It is however only toxic if ingested. By itself it is not dangerously radioactive. You could place a lump of plutonium metal in your pocket and walk around with it for a week with no ill effects. If however, you should inhale or ingest even the tiniest microscopic speck of plutonium dust or powder you would be dead within hours to days. Plutonium is often found in powdered form throughout the nuclear fuel cycle. Should a terrorist group obtain this material they need not go to the trouble of manufacturing a bomb. Dispersion of this dust from an aircraft over a city, or packing it around a few sticks of TNT and setting it off could, depending on the location and winds kill hundreds of thousands of people. Ingested plutonium is so toxic that one pound of the material, powdered and distributed evenly, could in theory kill the entire population of the planet.

Bombs need not be made from scratch.

The thousands of military installations, storage depots, and nuclear equipped ships and planes offer ample opportunity for the theft of one or more bombs. While these weapons are designed with safeguard mechanisms to prevent unauthorized or accidental detonation there is no guarantee that these devices cannot be over-ridden.

Should the safety devices prove too complex to circumvent, a terrorist might attempt to extract the nuclear material from the bomb and build another bomb with the salvaged material. Such salvaged material would also be quite convincing as proof that the terrorist organization actually possessed the materials necessary to construct a device.

Least one dismiss this avenue of approach by the terrorist, the following two incidents serve to illustrate terrorist intent, and the not too all-pervasive security of nuclear weapons.

A terrorist attack against a military base at Lebach, West Germany, resulted in several people being killed along with arms and ammunition being stolen. Had the terrorists realized that on the base, not far away from them were 16 nuclear bombs guarded by only a few men and dogs, the result might soon have been felt around the world.

When the Red Brigades in Italy kidnapped American General William Dozier he reported that he was extensively questioned as to the locations and security of NATO stockpiled atomic weapons.

It is clear that both the opportunity and interest by terrorists in the theft of atomic weapons has been demonstrated.

Continued on page 22

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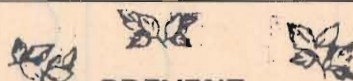
Since we started over 16 years ago, many have tried to duplicate or copy our success, but we continue to be the largest supplier of emergency food and equipment in the United States. Why are we still the leader? Because we offer the best and widest selection of food and equipment, low prices and just as important—quality service. We stock over \$1,000,000 of merchandise for immediate filling of all orders. So if you want to make sure you get what you order—you will buy from the leader. For those in the area we have a complete showroom for your inspection.

CBW Effective Israeli Mask



These were made for the Israeli population and feature a German made canister that provides protection against known battlefield airborne gases—including CBW gases. Brand new, but due to design change not current issue. You will want plenty of replacement canisters since each one is good for four to six hours of exposure. 6476W

\$ 19.95 + 2.00 S&H
Extra Canisters \$ 8.95 ppd. 48 states



PREVENT

Protects From Poison Oak, Ivy, & Sumac

Prevent is an easy-to-use cream that has proven to be one of the most effective methods of protection available. Just rub it in the morning and again in the evening—it keeps the urushiol from penetrating the skin. Washes off at the end of the day. Sold throughout the country for \$3.95 a tube. 1637

Special \$2.95
5 tubes \$10.00 + 1.55 S&H

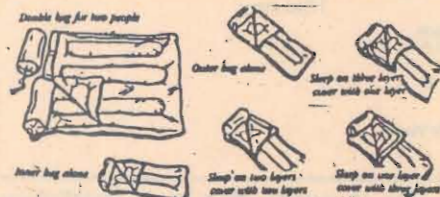


BEST BUY!

Italian Barracks Bag

These used but excellent barracks bags are made of 100-ounce grey duck, have a metal reinforced top bar so handles will not rip out, chain closure through metal loops which you can then run lock through so no one can get in. 24" long and 9" in diameter. If new and sold commercially you would pay at least \$75. #0318

\$ 14.95 + 2.75 S&H
3 Bags \$39.00 ppd. 48 states



System VI Sleeping Bag

Integrating two separate bags, the System VI provides six versatile configurations to meet practically every outdoor requirement. The outer bag can be used in temperatures ranging below +40° while the fully insulated zip-out liner can be used alone in temperatures above +40°. The insulated liner bag is 33" x 75" and is an excellent lightweight bag (weighs only two pounds) for not so cold temperatures or as an indoor bag. Both bags can be zipped together to form one huge 66" x 75" size double bag to comfortably sleep two people. Or, the two bags can be inserted one within the other to offer maximum protection in critical climate conditions to below +10° as a single, multi-layered bag. An air mattress can be inserted between the two layers for even greater comfort. Five pounds of Dacron® HOLLOWFIL® 808 fill.

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Special \$ 92.50 + 4.50 S&H

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Price
Higher
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VERY COMFORTABLE
MADE TO
USE EVERYDAY
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ELBOW
ZIPPERED
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COTTON/POLY
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CARGO
POCKETS



These coveralls were made to last and last. 80% cotton and 20% poly, each pair weighs a full eight pounds and yet is not hot to wear. Machine washable. Outside you get zippered cuffs on sleeve and leg, double elbows, six large zippered cargo pockets including two on front of leg, and reinforced seat area. Inside you get three pockets and a suede lined built-in holster that seems to hold a small semi-auto or revolver. I think these are excellent for hunting, offroad vehicle fun, flying, or for working. Olive only. Sizes to fit up to 6'. Maximum waist seems to be about 44", but they are coveralls so will fit loose. The only problem we find is that people forget that these were made to be used over heavy boots and gloves—they need to be bloused. 0324

\$ 59.95 + 4.50 S&H

We must have height and chest measurements for best fit.

THE BAG SAVE Up To 80%



Surplus military bag made to carry the heaviest tools. Made of super thick cotton/nylon and has full wraparound 1" rope handles. Two people could carry anything they could pick up in it—tools, sports equipment, etc. I cannot imagine wearing it out. 14" x 30", belt closure at top. Cost the government \$18 each. 0338

Special \$ 3.95 + 2.00 S&H
4 Bags \$18.00 ppd.

SURPLUS RADIATION EQUIPMENT

GARY
NORTH
APPROVED



Certified & Calibrated Survey Meter: Measures high level radiation from .05 to 500 R/hr. V 710 model that has been certified and calibrated to be the best used meters available. New one costs \$585.00.

\$ 165.00 ppd. 48 states

Certified & Calibrated Civilian Dosimeters: Measures exposure to radiation 0-200 R. Civilian Defense units that have been fully checked and certified. New ones cost \$129.95.

\$ 39.95 ppd. 48 states

Radiation Detection Package: Includes one certified survey meter, 3 certified dosimeters, 1 brand new military dosimeter charger. Everything you need to handle a high radiation measurement situation. If new \$1100.00—our regular price if bought separately \$399.00.

\$ 288.00 ppd. 48 states

Electric Food Dehydrator — SAVE Up To 60%

We were able to buy about 150 of these excellent electric food dehydrators at the ASD show at a close out price that will save you about 60% off what it has been offered on TV for the last 10 years. The Ronco dehydrator comes in a three-tray and a deluxe five-tray model and has proven to be one of the most reliable dehydrators available. They are quiet and energy efficient. They come with an excellent 28-page instruction book.

5321. Deluxe 5 tray model. 13" in diameter and 11" high. Reg. \$65.00.

Special \$ 28.50 + 3.00 S&H 2 for \$55.00 ppd.

5320. Standard 3 tray model. 13" in diameter and 9" high. Reg. \$49.95.

Special \$ 16.50 + 3.00 S&H

ADDED VALUE: These units also include a great yogurt-making set that allows you to make up to a quart of yogurt at one time. Four cups with lids and a good recipe book. This makes the units even better values.



Meals Ready To Eat

1984 MRE Meat Rations As Low As 75¢ Per Retort Pouch

We got these MRE component retort pouches of 1984 meat products at a very special price. They include eight items in all: Ground Beef with BBQ Sauce, Diced Beef, Ground Beef with Macaroni and Gravy, Ground Beef Manni Coti, Sliced Beef with Sauce, Ground Beef with Gravy, and Chili with Beef. They are, of course, overruns and packed to high military standards in triple layer retort pouches inside a heavy cardboard box—they have a shelf life of seven to ten years without refrigeration. Easy to prepare in boiling water or against an engine block. We are selling them in groups of 16—two of each excellent product. They are selling in surplus stores for about \$3.00 a retort pouch. R116

Special 16 Pouches \$ 22.00 + 3.75 S&H

48 Pouches (6 @) \$ 55.00 + 7.50 S&H

96 Pouches (12 @) \$ 96.00 + 7.50 S&H

576 Pouches (72 @) \$ 432.00 freight collect

1152 Pouches (144 @) \$ 795.00 freight collect



MRE BAKED GOODS

These have proven to be great for trail snacks, children's lunches, scout and other camps, and offroad travel. Not only are they good eating, but capable of being stored seven to ten years.

MRE Cakes. Very moist and tasty cakes in triple foil pouch. Chocolate Nut, Pineapple Nut, Cherry, Fruit Cake, and Orange Nut offered in mixed assortment. R102

6 Cakes \$8.00 ppd. 24 Cakes \$28.00 ppd. 72 Cakes \$59.00 ppd.

"Gorilla Cookies." Named in Lebanon, these are chocolate coated, two to a pouch. R100

10 packs \$5.150 ppd. 20 packs \$9.50 ppd. 100 packs \$45.00 ppd.

Chocolate Nut Brownies. Add moist and all is said. A real treat. R101

10 pack \$6.50 ppd. 20 pack \$11.50 ppd. 100 pack \$52.00 ppd.

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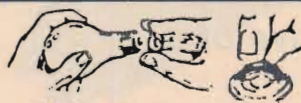
THE LEADER IN SURVIVAL FOOD
& EQUIPMENT FOR OVER 15 YEARS

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**Swiss Portable Water Purifier**
Will Purify Up To 300 Gallons

Made in Switzerland, this unit uses a two-stage filter to remove all the things you need to take out of water—odors, colors, smells, and above all, harmful bacteria. Pump system can take water out of any container, stream, lake or puddle. The unit originally sold for \$29.95 and an extra filter was \$12.95. 4005

Purifier & extra filter
\$ 10.50 + 2.00 S&H
2 Sets \$ 20.00 ppd. 48 states

**THE BULB SAVER**
Extends Life of Light Bulbs 700%

The Bulb Saver cushions the bulb against the surge that hits when you flip the switch. But besides that, it is a half-wave rectifier that reduces the voltage applied to a bulb by approximately 30% and reduces the amount of electricity consumed by 40 to 50 percent.

Your bulbs will last seven times as long. Use about 15% less power to give the same amount of light. We guarantee that you will get the value you pay for or your money back.
6705 Standard 6707 Candelabra

\$ 15.00 dozen + 1.75 S&H
Apartment Owners Special
50 Bulb Savers \$ 55.00 ppd.

**The Newest
In Holsters**
NYLON PADDED

Not only are they comfortable but the thick padding protects your valuable weapons. We offer two styles: a flap holster that will hold 4" automatics—Colts, Baretts, etc. and a shoulder holster that will handle 4" autos and 4 to 6" revolvers.

Flap Holster features velcro closure, tie down and belt loop. Heavy black nylon fabric thickly padded. 0331

Shoulder Holster with velcro hold down and three-strap adjustable carrier. Black nylon fabric. 0332

Your Choice \$ 14.95 ppd.
2 Holsters \$ 27.50 ppd. 48 states

**Nylon
Leg Wallet**

Hidden by your pant leg are 2 zippered pockets and 2 slide-in compartments. Velcro straps for adjustment. Made from rip stop nylon, it is super durable. Great for when you plan to be in a crowd of people and you don't want to lose your wallet. Also these are super for the sports person, bicycling, hiking, etc. One size fits all. 0330 reg. \$7.00 + 1.50 S&H

Special \$ 4.95 + 1.50 S&H

**Shotgun
Bandolier**

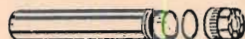
Made of heavy-duty reinforced blacked webbed nylon. The best advantage of a bandolier is that it evenly distributes the weight of the shells so you don't have a bag heavy pouch or bulging pockets to get in your way. Holds 56 shells securely. 0361

\$ 11.95 + 1.75 S&H
2 for \$ 19.95 ppd.

**Assault Rifle
Gun Case**

Made for the AR-15, H&K Assault Rifles, etc., with scopes mounted. These cases are lightweight yet very durable, made of black cordura nylon with reinforced nylon webbing handles and no-suff webbing bindings. Comes with a double zipper pocket on sides that will hold four AR-15 mags. 0360

\$ 29.95 + 3.50 S&H
2 Cases \$ 57.50 ppd. 48 states

**3" x 27" Molded Cache-It**
SAVE 85%

These excellent Cache-Its are molded of heavy density plastic and are completely waterproof, almost unbreakable, and, of course, are resealable. Made to hold 81mm mortar rounds, you can bet that they are sturdy. 4325

Special \$ 6.95 + 2.25 S&H
5 for \$ 29.95 + 3.50 S&H
20 for \$ 95.00 + 8.50 S&H
100 for \$ 300.00 freight collect

BEEF, BEEF, BEEF

SAVE
75%

Lower
Price
Higher
Quality

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Three Types:

SPLINTING

*Proper splinting relieves pain,
reduces chance of further injury . . .*

By Douglas Blevins

THE PURPOSE of this article is to give you an introduction to splinting techniques and materials. These guidelines are intended to be used when dealing with fractures of the arms or legs.

The reason for splinting a fracture (or a suspected fracture) is for immobilization. Movement of a fractured bone can be very painful. Proper splinting can relieve some of the pain, and, reduce the chance of further injury.

When do you apply a splint? How do you recognize a broken (fractured) bone? Fractures vary in appearance. Talk to the victims. What they can tell you helps a great deal in deciding what to do. However, there are certain signs and symptoms of fractures that can be applied to almost every case whether the victim is conscious or not.

(1) Look for obvious angulation or abnormality.

(2) The victim may have heard the bone break.

(3) In an open (compound) fracture you can sometimes see the bone ends.

(4) Swelling or discoloration may occur in a specific area.

(5) You or the victim may feel the bone ends grating inside the skin.

Safe Bet—Remember that the definitive diagnosis of a fracture is done by a doctor and X-rays. But, in a disaster or survival situation, doctors and X-ray machines may be in very short supply. It is always a safe bet to splint suspected fractures. Notice I did not say to reduce (set) a fractured bone. That is a professional's job. Fractures can be set up to several days later without extra problems. It's just not worth the potential risk to nerves, blood vessels and, in some cases, a person's life, to set a bone if there is (or will be) a doctor available.

In a worst case scenario you must use your best judgment. But, remember, there is no substitute for "hands on" training and experience. Splinting is an "art" well within anyone's ability to learn, an art that is best learned before it is needed.

Here are a few general rules for splinting:

(1) Do not move the victim (unless it is absolutely necessary) until you have splinted the fracture(s).

(2) Cover all wounds on the injured limb with a dressing (bandage) before splinting.

(3) Remove carefully (or cut away) all clothes that cover the injured limb.

(4) Always be sure that your splint immobilizes the fracture above and below the break.

(5) Before, during and after application of the splint, be sure to check the wrists or feet for pulses. Any changes in color or sensation of feeling, are indications of circulation problems if the splint is applied incorrectly (too tight).

(6) When in doubt . . . *splint!*

Types—There are many different types of splints available today. Some are quite specialized. They can be as humble as a stick or newspaper, or as high-tech as inflatable plastics. Despite the great difference in how they are made, they can be broken down in to three general categories: rigid splints, soft splints and traction splints.

How you apply each type of splint is slightly different. The only thing that is done the same for each splinting situation is the principle of traction. To apply traction, you gently pull the limb in a straight line away from the body. The reason you use traction is to reduce the pain and lessen the chance of further injury. Note that traction is not to be used if there is a severely angulated fracture. Severely angulated fractures should be "splinted as they lay." Femur (thigh bone) fractures are best treated with a traction splint. If you do not have one, then splint it as it lays.

Rigid—The first type of splint is the rigid type. These can be made of any firm, non-flexible material. Commercially available types are the board splint, wire ladder splint, fiberglass and cardboard splint. You can improvise this type of splint out of a staggering variety of materials. Some examples of improvised splinting materials are newspapers, magazines, tree limbs, broom sticks, popsicle sticks (for fingers), or, even a rifle (be sure it's unloaded first!).

The rigid type of splint must be padded as it is applied for support of the injury and comfort to the victim. Good padding could be rolled or folded sheets, towels or rags. The padding is placed between the splint and the injured limb, while the splint is being applied.

The basic principle for application of the rigid type is the same for both arms and legs. Having two people to apply the splint(s) is very helpful. Here are the steps:

(1) Apply dressings to any wounds on

the injured limb.

(2) One person gently supports the injured limb and applies slight traction.

(3) The second person positions the splint alongside, over or under the injured limb.

(4) The second person places the padding between the splint and the injured limb.

(5) The splint is securely wrapped. The second person begins at the end of the splint closest to the body and works toward the hand or foot. You can improvise the wrappings, but any roller gauze will do. Two products that work especially well for this are Kling and Kerlix.

While I was in the ambulance business, I developed a strong prejudice for using one type of rigid splint. I just loved cardboard! It stores well, can be customized with just a knife or scissors, and best of all, it's *cheap*. You can make your own from cardboard boxes or you can buy "die cut" ones commercially. They aren't pretty, but they work.

Soft—Soft splints (air splints) are a relatively new type of splint. They are generally constructed of a heavy duty double-walled, transparent plastic. They come in a variety of sizes and shapes. Some even have zippers for ease in application.

These air splints have some distinct advantage over the rigid types. They are very compact in storage, fairly light in weight, very comfortable to the victim, relatively easy to apply and they can apply a gentle pressure to a bleeding wound when inflated properly.

There are some disadvantages and limitations to the air splint. It can be torn on sharp objects. It can leak, and is not usable on severely angulated fractures. Lastly, it is not easily reshaped, so you need to keep more different types on hand.

The air splint is applied in a different manner from the rigid splint. Again, two people to apply the air splint works the best.

Air splints without a zipper:

(1) Dress any wounds or bleeding on the injured limb.

(2) The first person pulls the deflated splint onto and around one of his (or her) own arms, to hold it open.

(3) You then apply gentle traction while the second person supports the limb.

(4) The first person then gently slides the air splint onto the injured limb. (Remember to maintain traction and support.)

(5) The second person can then inflate the splint. Use only lung power. Air pumps can overinflate the splint causing severe damage to the victim.

Air splint with a zipper:

(1) Apply bandages to any bleeding wounds on the injured limb.

(2) One person applies gentle traction to the injured limb while supporting the fracture site.

(3) The second person then slides the deflated splint onto or around the limb.



ABOVE—These are traction splints.

BELOW—Once in place over the victim's broken limb, an air splint is carefully inflated.



(4) The first person must then change hands from inside the splint to the outside, while the second person supports the fracture. Remember to maintain traction while changing hands.

(5) The zipper is done up.

(6) The splint is then inflated by the second person, by mouth.

We used to carry all the different sizes and shapes of air splints on the ambulance. But in my experience, the only ones we used very often were the full arm, half arm, and full leg and half leg. These seemed to do the job very well. If you feel the need for air splints, these four will do most any of the jobs that an air splint is good for.

Traction—Traction splints are a specialty type of splint. They have been around quite a while in one form or another. The famous Hare traction splint is a modern version of the Thomas half-ring splint. They were developed primarily to treat fractures of the femur (thigh bone). Although a lower leg (but not ankle) fracture can also be treated fairly well by their application. What makes a traction splint so useful is its ability to develop a strong, even, steady pull which is able to overcome very strong muscles in the thigh. This in effect separates and immobilizes the bone ends.

Traction splints are very complicated to

apply compared with an air splint. If you plan to have one, you must develop a good technique. The only way to do this is to practice, practice, practice.

Two persons are necessary to apply the traction splint:

(1) Bandage any bleeding wounds on the injured leg.

(2) The first person squats down by the victim's foot. Place one hand under the ankle while the other hand goes on top of the foot.

(3) The first person begins to apply gentle, even traction by slowly rocking backwards.

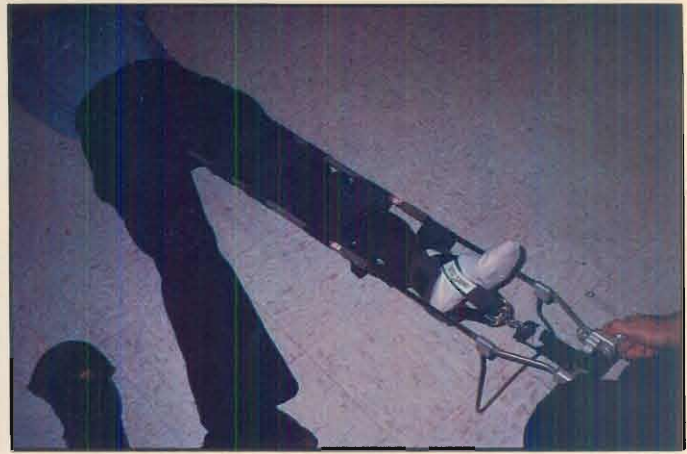
(4) The second person positions the splint with the padded collar against the hip. (The newer types can also be adjusted for length. A good rule of thumb is to position the end of the foot rest under the heel. It's better to adjust it a little long than too short. Practice makes perfect.)

(5) Secure the splint using cravats or the straps that are provided.

(6) Place the ankle hitch around the ankle and prepare to tighten up the ratchet (or Spanish windlass arrangement).

(7) Tighten up the ratchet. Keep tightening until the victim feels marked relief from pain. Never let the traction off once it is applied. (Traction is let off when the bone is set.)

(8) Check all the straps for tightness. Then elevate the splint three to five inches



ABOVE—Traction is applied to a broken leg.

BELOW—A cardboard splint placed around the injured arm is wrapped with gauze.



off the ground.

(9) Check the foot's pulse. Check the toes for color.

(10) Seek some sort of medical aid. This is a very serious injury and it can be life threatening. (Should the femoral artery be severed, a person could "bleed out" in a matter of minutes.)

The procedure for using the traction splint for lower leg (but not ankle) fractures is the same, except the straps are positioned in a different manner to better support the broken bones.

When the traction splint is used correctly, the victim will go from a state of excruciating pain to one of near painlessness. I once treated an accident victim with a fractured femur, using a traction splint. He was in great pain, but when we applied the traction splint, he thought that we had repaired the damage. He felt well enough to go home, but he was hospitalized. He did go home after several weeks in the hospital.

Pain—And now about the dreaded pain. Fractures hurt. There is no way around it. Paramedics have sufficient pain killers, such as morphine, that can be dispensed. The rest of us have to use aspirin. EMT 1s, who work on ambulances, cannot even use that! Experience has shown that a significant amount of pain relief can be had if you do three simple things when treating a

Continued on page 70



A careful approach and bait selection are essential to angling success. Here trout, lying along the far bank, are enticed. Notice the characteristic clear waters of this brook trout stream.

Part II:

FRESHWATER FORAGING

Artificial baits and spinning gear . . .

By Richard Colagiovanni

(This is the second of a series of articles dealing with the equipment and methods employed to catch numerous fish species in their freshwater habitats across the North American Continent. The first article, which appeared in the October issue, presented an overview of the condition of America's fisheries and explained some basic gear and live baits. This article will cover artificial baits and spinning gear—The editors.)

ARTIFICIAL LURES are fish catching devices fabricated from a variety of materials (wood, hard plastic, soft plastic, metal, etc.) fashioned in such a manner to resemble an edible portion of a fish's diet, or to create a disturbance or aggravation that solicits a strike. For survivalist use, I've reduced the basic types into the following general categories:

Spoons—Spoons are ancient designs, artificial fish enticing devices usually fabricated of cast, forged, or stamped metal alloys, either metallic plated (chrome, silver, gold, nickel), or painted with enamels (flat, glossy, or fluorescent).

Weights vary from 1/32 ounce for flyrod use (trout), upwards to 7 ounces or so (for

enormous pike, salmon and lake trout). The flash/wobble (ratio of spoon weight to surface area) that is inherent in such designs, lends the versatile spoon to be fished in numerous streams and lake situations.

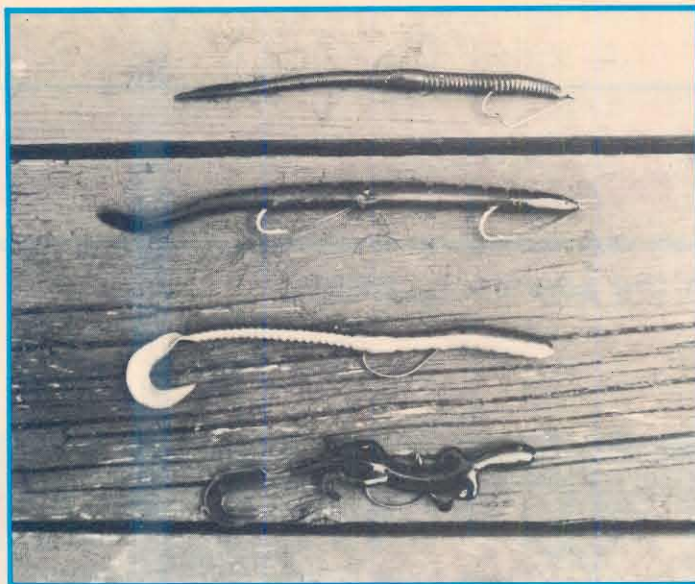
Spoons vary in length, width and thickness ratio, with each construction producing a specific action. Long, thin, spoons such as Mooselock Wobbler flutter and oscillate at the slightest retrieval or troll speeds. They are excellent for "still" water use on salmon, char and trout. Proportionally thick to length-width ratio, Acme Flyrod spoons perform, admirably in fast velocity streams inhabited by trout and small-mouth bass.

Spoon hooking arrangements vary from single barb to treble, and in the "weedless" configuration, either free swinging single (split ring mounted) or "fixed" (non-moving, either welded or screwed). Weedguards are usually made of flexible stiff bronzed stainless steel wire (the wire weedguards are bent and adjusted until barely enough tension is applied to the hook points as they are covered). The objective here is to provide sufficient tension to cover the exposed hook while it hops and

skips over vegetation and submerged timber. On the other side of the coin, the guard is resilient and yielding enough to expose the hook point and barb so it may penetrate the fish's maw. Other styles of weedguards include stiff yet flexible nylon bristles, and rubber bands.

For the survivalist, the following spoons are recommended: 1/4-, 2/5-, 1-ounce Eppinger Daredevil in red, white, nickel finish; Eppinger Flutter Chunk 3100, 3200 in a variety of prismatic and glitter tape finishes; Acme K.O. Wobbler in 1/8-, 1/4-ounce gold and fluorescent orange; Hopkin's No-Equal, solid hammered stainless steel, with or without bucktail in 1/8-, 1/4-, 1/3-, 1/2-, 3/4-ounce; Al's Goldfish in 3/16- and 1/4-ounce gold finish; Johnson's Silver Minnow—a weedless spoon in silver finish weighing 1/4-, 1/2- and 3/4-ounce; Acme Kastmaster in chrome finish 1/4-, 1/2-, 1-ounce; and Weedless Lures' Grub-N-Spoon, 1/2-ounce with translucent lime tails.

Presentation—Spoons are presented to gamefish/foodfish in a multitude of ways dictated by targeted fish species and physical fishing conditions. Trout streams



LEFT—Proper hook placement of some plastic imitation lures is shown here.

BELOW LEFT—This is a basic freshwater foraging gear selection including plugs, spinners, spoons, a fly assortment, soft plastic bait imitators, spinner bait and pork rind.

BELOW—Assorted hooks, leader material, line and sinkers, salmon eggs, pliers, filet knife, sharpening stone, dry fly oil and floats make up additional basic freshwater foraging gear.



possessing moderate width (50 to 70 feet) will denote casts quartering across downstream, across, quartering upstream and upstream—the idea is to reel or not reel so as to create the desired fish-attracting wobble or action inherent in these formed pieces of metal.

The lake/pond fishing scenarios offer a number of spoon presentation possibilities. The presentation that is closest without alarming the fish will have the better chance to score. Retrieved at a variety of speeds, or trolled via a moving boat or canoe, the lure will do its job. Other retrieve variations include darting and pausing.

Deep vertical jigging of heavy spoons in an effort to locate wintering bass or trout can be accomplished through the ice or in open water. The spoon is lowered (Hopkins No-Equal) to the bottom, hauled part way up and dropped fluttering to bottom, or the same procedure is done at mid-depth. In shallow weed/brush/stump infested water, a weedless spoon is fished through and over a variety of emergent/submerged vegetative covers where many predatory (edible) fish frequent. A 1/2-ounce Johnson Silver Minnow is slithered

through lilly pads for the lurking northern pike. As the lure slides across the pads, it is allowed to settle (flutter) down several feet in the more open water pockets among the pads.

Makeshift survival spoons can be fabricated from old eating spoons, metal strips, etc.—simply cut, drill and attach hooks.

Spinners—Spinner type lures are also very effective standard lures designed to catch a multitude of fresh water species. They consist essentially of a metallic blade that rotates on a wire shaft, often weighted for casting/sinking requirements. The flash and sonic noise emitted by the whirling blade induces noise that either duplicates natural baits or caters to strike impulses or reflexes. Recommended for survivalist use are the following spinner models: Original Mepp's French spinner No. 0(1/12-oz.), No. 1(1/8-oz.), No. 3 (1/3-oz.), and No. 5(1/2-oz.) possessing gold or silver finish blades with a variety of them plain hook and some adorned with buck or squirrel tail; Rooster Tail spinners in gold or silver finish, with weights of 1/8-and 1/4-ounce; and Panther Martin Spinners which exhibit a unique concave-

convex blade that produces exceptional hydrosonic fish attracting waves.

Spinner models without "flies" lend themselves for use with a natural bait. I.e., the addition of a small worm, aquatic nymphs, etc. The Panther Martin is my all time trout spinner of greatest success, coast to coast. For bass and walleye frequenting dropoffs and holes, the Erie Dearie/Super Erie Derie in 3/8- to 5/8-ounce are hard to beat. This spinner is usually used in conjunction with a live bait such as minnow, nightcrawler, or leech. Spinners may be effectively displayed by anglers in ponds, lakes and streams of all sizes, either cast, trolled or deep jigged.

Plugs—Plugs, are usually plastic or wooden in construction and represent living creatures, usually bait fish or immature specimens of fish. Other plugs represent frogs, mice, and other living critters. Plugs are effective fish catchers that enable the angler to cover large amounts of possible fish holding water in relatively short amounts of time. An additional advantage is these inanimate devices require no special handling in storage.

Continued on page 43

A Guide:

SURVIVAL CATALOGS

Here's a list of the best in the survival business and what they offer . . .

By William John Elliott



THE WORLD of survival has become larger and suppliers of the tools and goods of survival have proliferated to an astounding degree. This has been a boon to survivalists giving competition in a growing market and supplying goods and services to those who require them. As an aid to the readers of *American Survival Guide* I have put together a list of catalogs for those hard to find items for survival.

Quick Reference Chart—To assist the survival shopper in locating various items I have developed the CATALOG QUICK REFERENCE CHART and the CATALOG ADDRESS LIST located later in the article. To use these aids identify the category at the top of the chart which best describes the item you are trying to find. The categories are listed by letters A through U at the top of the CATALOG QUICK REFERENCE CHART. Find the column which corresponds to the letter and run your finger

down the column. If a number appears in the column then the catalog listed to the left of the chart contains items listed in that category. The higher the number the heavier the coverage of the selected category in that catalog. The definition of the numbers is listed at the bottom of the chart.

After identifying the name of the catalog you would like to see go to the CATALOG ADDRESS LIST and locate the address of the supplier. The catalogs are listed in alphabetical order for easy identification. Category identification letters V through Z have been left open so the shopper can identify categories of his own and customize the chart for his own use.

By using the QUICK REFERENCE CHART, the CATALOG ADDRESS LIST, and the descriptive paragraphs that follow shopping for those hard to locate items becomes a pleasure instead of a drudge. So sit back, relax, and browse.

DESCRIPTIVE PARAGRAPHS

AMERICAN BODY ARMOR—A wide range of body armor products are covered in American Body Armor's colorful dozen page catalog and additional information sheets. Charts, graphs, test descriptions and standards aid the reader in choosing the bullet deflection devices that best fit his needs.

AMERICAN OUTDOORS—American Outdoors presents its sporting goods catalog of 72 pages picturing in black and white hundreds of items useful to hunters, campers, and survivalists.

AQUA-PONICS, INC.—Everything the Hydroponic gardener needs to set up and maintain his "garden without soil." A thin catalog that covers all the essentials in efficient style. Plenty of information, pictures, and descriptions.

Continued on page 38

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Part I:

HOW TO STAY WARM

More deaths attributed to cold weather occur during relatively mild temperatures . . .

By Hal Gordon

(This is the first of a two-part series of articles on hypothermia or sub-normal body temperature. This article covers the six main causes of excessive body heat loss. The second part of the series which will appear in next month's issue, discusses how to protect yourself from hypothermia with clothing, shelter, fire and other means, and other aspects of cold weather survival—The editors)

AS SURELY as winter follows summer, you will read headlines announcing the inevitable deaths resulting from blizzards. Many of the reported fatalities will concern motorists who become stuck in snow drifts.

The same fate awaits a hunter who is surprised by an early winter storm while located a day's hike from base camp. But extreme cold and blizzards are not the only dangers you will face this winter.

A review of medical records and news reports over the last 20 years reveals a picture quite different from what most survivalists envision as their major cold weather challenge. Believe it or not, more deaths attributed to cold weather occurred during relatively mild temperatures—well above freezing. The common mistake made by those victims was in not understanding the mechanics of *hypothermia*. In many cases, they wore adequate clothing, but couldn't manage to stay warm by controlling their body temperatures. In ignorance, they allowed their body temperatures to cool without being aware of it. By the time their mistake was discovered it was too late to recapture the lost warmth.

What is the mysterious process called hypothermia which kills seemingly experienced outdoorsmen in moderate temperatures? It is typified in newspaper stories, in the more familiar term "... he froze to death in sub-zero temperatures." In temperatures above freezing, the news item would read, "Death was due to exposure." Although the reporters were probably not aware of it, the frozen victim and the one who died from exposure fell prey to the same cause—*hypothermia*.

Temperature:—Look at a climate atlas of the world and you may be surprised by the percent of land mass subject to cold temperatures. More surprising is the fact that most of the tropical lands on the map can

also expose you to a fatal dose of hypothermia. This can occur anytime the temperature falls below the comfortable level, as during the night, winter season or at higher elevations. It happened to me in Hawaii at an elevation of only 2,500 feet. As you can see, the danger from cold can strike you almost anytime, anywhere, and especially on those occasions when you are least prepared.

Cold weather preparation covers many subjects, all of which you will want to study: shelters, clothing, tents, boots, sleeping bags, stoves, nutrition, fire-making, food, hunting, snow travel, and more. But first, there is *hypothermia*, the cause for all this preparation. A literal definition of this word might read, "A condition when the body temperature falls below 98.6 degrees F.

To prevent hypothermia, your main objective is to *stay* warm by never allowing your body temperature to drop below normal. This is a key concept to remember and there are two good reasons for stating what may seem to be the obvious. In almost all reported studies of hypothermia, the victims were not aware of their true condition. Secondly, once your body falls below the 98.6 degrees F. level, it requires much more heat and effort to get it back to normal than would have been used to merely *maintain* a normal temperature. As your temperature falls, it creates a momentum that is difficult to reverse. By the time you realize your problem, it can be too late. The only way to avoid this danger is to understand how your body controls its temperature and heat production. This knowledge alone is the best single preparation you can make for cold weather survival.

Heat Loss—Hypothermia begins the moment your body begins to lose heat faster than it can be manufactured and retained. To prevent this, you must supply your cells with fuel (food) and allow only excess heat to leave your body. That's all there is to survival in the cold. Just do those two things. It sounds simple: "Carry a chocolate bar and wear a warm coat," but staying warm can become a lot more complicated.

Man is most comfortable in a tropical climate. When he becomes uncomfortably cold, the blood vessels closest to the skin close down in order to send more blood

and heat to the body's central core. In other words, the body sacrifices the hands and feet in order to save the heart, liver and lungs. This is why you suffer numb toes and fingers so quickly, which often leads to frostbite.

There is another effect of hypothermia which you should keep in mind—especially if you aren't in perfect health. As the reduced heat in your blood system cools your body cells, your entire health is suddenly imperiled. Each cell in every organ will operate in a half-hearted manner when it becomes cold. This condition puts Murphy's Law into full control: "Whatever can go wrong, will go wrong." No matter how healthy a specimen you may be, your body is predisposed to some weaknesses more than others. This weakness will be the first to show up. As your body temperature drops, symptoms will surface. For example, if your lungs are harboring a pneumonia virus, your body's defenses may become too weak to prevent the virus from multiplying. Cold is especially hard on your heart, lungs and kidneys.

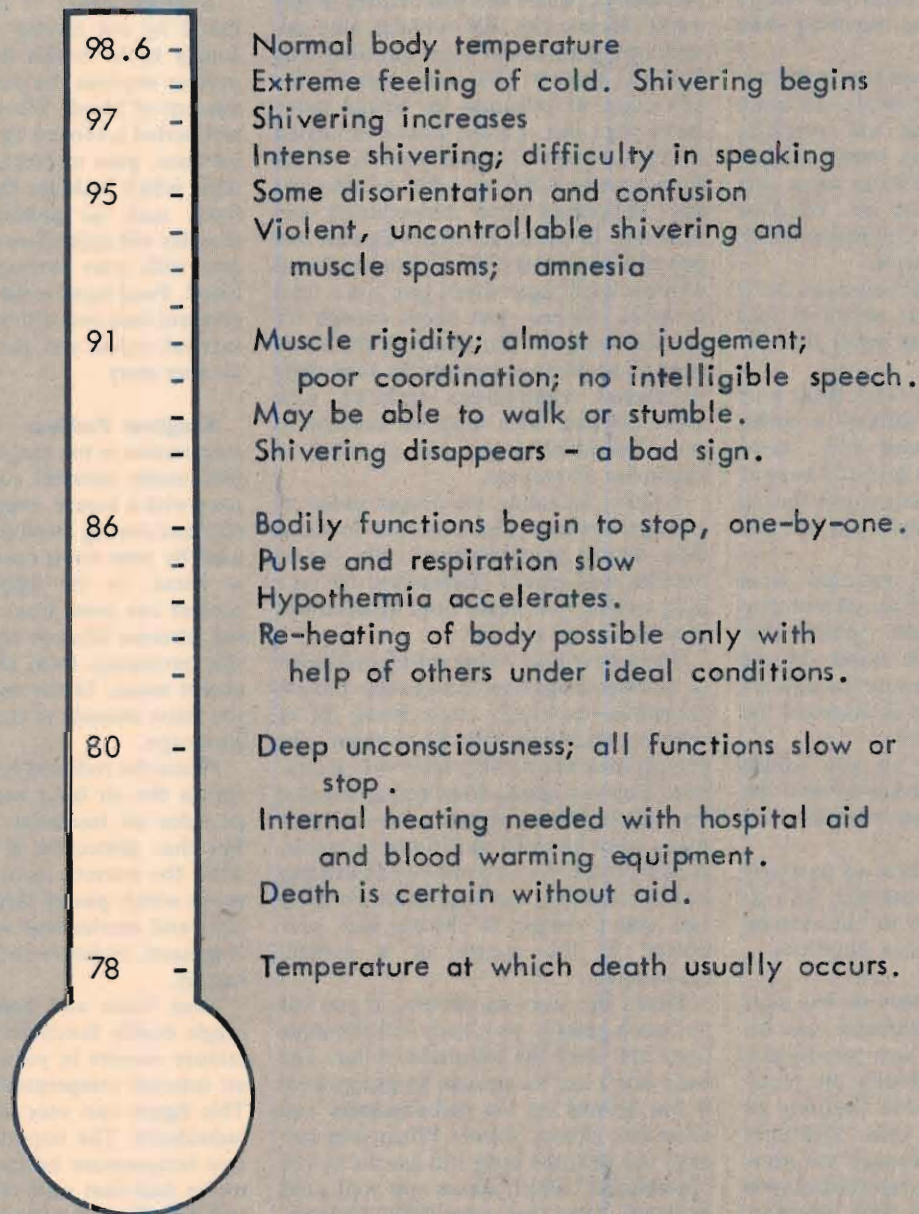
"Warm weather hypothermia" cases are common in temperatures between 30 and 60 degrees F. The reason such a paradox can occur is because the process is slow and gradual. By the time you become aware of your problem, it may be difficult to recapture your lost heat. When you become over-confident or careless, you may allow your body temperature to lower so gradually that you could become a "death from exposure" statistic.

It can't be repeated too often, as Dr. Richard Besdine, a professor at Harvard Medical School tells us, "Hypothermia can start whenever you begin to feel just a little uncomfortably cold." He goes on to say that this could occur when the temperature around your skin falls to around 25 to 30 degrees F. below your normal body temperature. For example, a middle-aged man in shirt sleeves will begin to feel cold at around 65 degrees or, if he is younger and healthier, at 60 degrees. When the thermometer reaches 30 degrees or 40 degrees, our middle-aged man will lose heat faster than he can produce it. This explains why so many older people are found dead in their homes from unexplained causes—victims of nothing more than exposure, or hypothermia.

Chances—A question raised is, "When

HYPOTHERMIA SYMPTOMS

TEMPERATURE
°F



does an ordinary backpack hike turn from fun into survival?" The experts answer that by stating, "Don't take chances. At the first hint of not being able to maintain warmth, terminate your present activity; stop your climb and return to base camp or interrupt your travel to bivouac. Make a

shelter and fire." They also advise that if you suspect that you are close to a state of exhaustion while otherwise experiencing acceptable conditions, seek immediate rest and shelter.

Because you may not recognize danger signals in yourself, you and your compan-

ions should be trained to watch for them among yourselves. This is an important reason for carrying a rectal thermometer in your kit. Some people exhibit different symptoms of hypothermia at different stages. A rectal reading will show the exact status of hypothermia.

—HOW TO STAY WARM

Now that we've looked at the definition and dangers of hypothermia, the next step is to see how we can prevent it from happening to us. Harking back to the importance of controlling excessive heat loss, let's look at the six major causes of that loss.

INTERNAL HEAT PRODUCTION: You lose heat internally when your body's available calories run low, requiring more food intake.

EVAPORATION: When your body produces more heat than it needs—as when you are exercising—you will perspire. When moisture from any source evaporates from your skin, the water vapor carries heat with it into the air. Wind or moving air accelerates evaporation which leads to the wind-chill factor.

RADIATION: Your skin operates like a hot water radiator. Your skin's surface blood vessels radiate heat waves into the air.

CONDUCTION: Heat flows from your skin and body directly through a cooler medium such as the ground, snow, metal or cold water. Immersion in a cold body of water can remove heat from your body 240 times the amount you might lose into the still air.

CONVECTION: Heat radiated from your skin warms a layer of air surrounding your body. Air movement replaces that layer with cool air. The faster the air moves, the more heat you lose through the replacement of your warm air layer and the accelerated evaporation rate.

RESPIRATION: The air you exhale from your lungs is super-heated and the source of a tremendous heat loss with every breath.

Now that the six sources of excessive heat loss have been pin-pointed, let's go over each one and see how we can exercise some control over dangerous situations.

Heat Manufacture—There are two ways to manufacture heat: voluntary and involuntary. Involuntary heat production goes on continuously through the metabolic process—the chemical burning of food fuels by your body cells. Voluntary heat production comes through the exercise of your muscles. You can control your heat output by pacing your exercise. Jogging can raise your heat six times the normal basal rate. Strenuous exertion for a short period can raise your energy level to 10 times normal. Exercise which will double your heat output can be sustained all day, such as walking. Care must be taken that you don't exert yourself beyond the amount of work necessary to maintain your body heat unless the situation becomes urgent. Exhaustion and hypothermia go hand-in-hand.

Your body might burn 2,000 calories per day while camping leisurely in one location. This would require only a couple of light meals a day to fuel your body, as long as you conserved your heat. But what about survival or expeditionary conditions which require the maximum energy production?

Most readers will recall reading that Eskimos eat whale and seal blubber to stay warm. Here's why. Fat contains nine calories per gram while sugar provides only half that amount. However, sugar has the advantage of releasing its energy much faster than fats. Caloric intake estimated to be adequate for cold regions ranges from around 4,000 to 6,000 calories per day, depending upon temperatures and activities. Based on the above figures, one pound of vegetable oil (fat) plus one pound of granulated sugar would give you a total of 5,821 calories—just about enough for one day's rations. But that isn't the whole story. Your body also needs the total daily nutritional requirements included with those calories. This must be tailored to your individual needs and provided in maximum allowances.

Protein, including the proper ration of essential amino acids, is needed to make daily repairs to overworked cells, joints, muscles and organs. Depending on your body weight, you would need between two to three ounces per day.

There have been many stories published in outdoor magazines concerning protein starvation—especially while living off of rabbits, which have little fat on them. The protein itself has nothing to do with starvation. You can starve from eating any one type of food because you are missing so many other essential nutritional elements. A high protein diet can provoke an existing health condition, but that would be fairly rare and a subject to discuss with your doctor in the course of a general examination.

Here's the story on protein. If you eat too much protein, your body will eliminate some and store the remainder as fat. The body won't use the protein as energy until it has burned up the carbohydrates and other fats already stored. When your calories run low, the body will use the stored "protein-fat" which serves you well until depleted. After that, your body will begin drawing protein from your cells to be used for energy. This is when the serious effects of starvation will appear.

Controlling fuel consumption also means controlling your eating habits by eating smaller meals more often: breakfast, mid-morning snack, lunch, mid-afternoon snack and an evening meal to sustain you through a cold night. For emergency tasks, such as climbing, a quickly absorbed simple carbohydrate is

called for. Sugar or honey are perfect for fast energy. For long-range sustained energy, the complex carbohydrates are better: potatoes, grains and starches which release their energy slowly. Make sure you carry some fat reserves by consuming food fats with one or two of your meals. You always want to stay ahead of your body's fuel needs or your furnace may go out.

Another aspect of control is accomplished by not forcing your body's blood supply to do double duty. The digestion process requires the use of a considerable amount of blood. When you know a long rest period is coming up, a night's sleep for instance, plan to precede it with a larger meal which includes the harder to digest foods such as protein and fat. Your muscles will appreciate not having to compete with your stomach for energy and blood. Food input is the simplest and most pleasant task you will face in cold weather survival unless you run short, but that's another story.

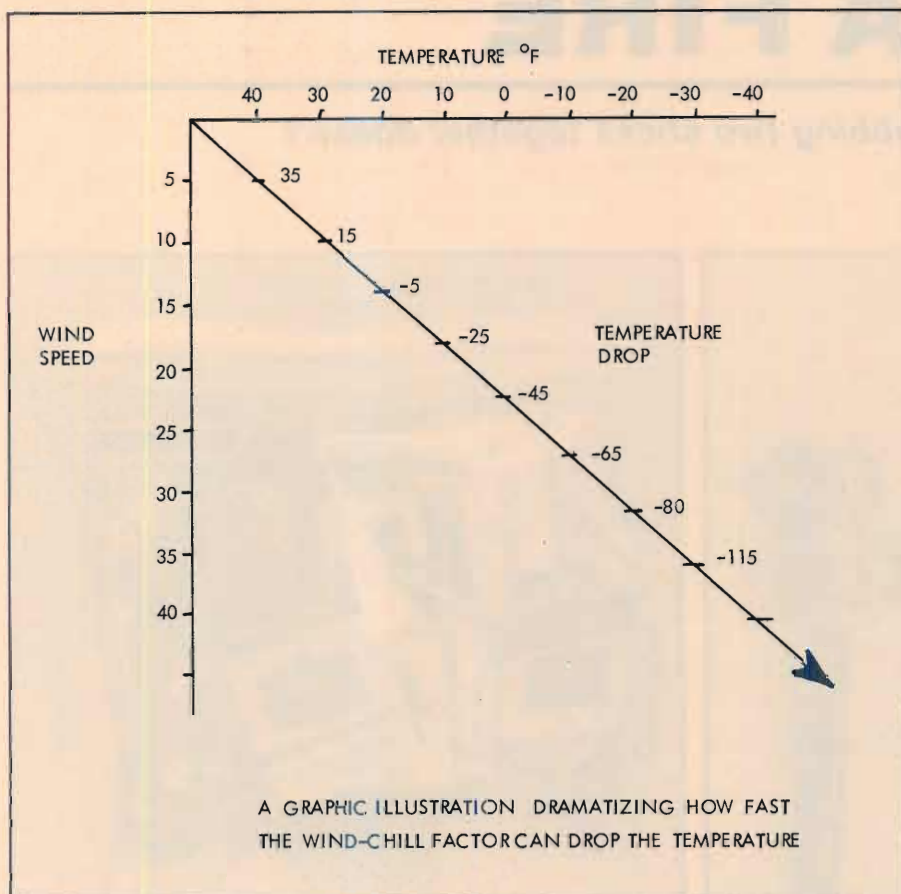
Toughest Problem—Heat loss through evaporation is the toughest problem you'll face under survival conditions. In company with a breeze, evaporation is a highly efficient cooling mechanism, the same one used by your water-cooled air conditioner at home. In the wilderness, the water coolant can come from sweat, rain, snow, fog, streams lakes or ocean. You can provide protection from all of those sources except sweat. In the case of perspiration, you must attempt to control its cause and its escape.

When the radiated heat from your body warms the air layer next to it, that layer provides an insulation against the cold. But that protection is partially defeated when the warmth turns your sweat into a vapor which passes through the warm air layer and carries heat with it. When wind is present, moisture and heat are removed rapidly.

Your brain and body cells constantly juggle bodily functions, guided by temperature sensors in your skin, to maintain an internal temperature of 98.6 degrees. This figure can vary slightly in different individuals. The importance for this delicate temperature balancing act goes back to the fact that your cells become "sick" and function at sub-par efficiency when their temperature varies, even slightly.

The evaporation system works well in warm air, but tends to act against you in cold air. You can prevent excess perspiration by keeping your skin surface cool. This shouldn't be hard in cold weather. The trick is to wear just enough clothes to keep you comfortably cool.

The other heat producer you must learn to control is exercise. First, you learn to pace yourself or remove enough clothing



while exercising so that your sweat evaporates immediately into the air preventing your clothes from becoming soaked.

Least of Worries—Normally, radiation is the best of your heat loss worries. Heat waves continually radiate from your body's surface, but the loss isn't critical and is relatively easy to control with clothing. Keep in mind that the greatest radiated heat loss will come from your unprotected head. Always carry warm head gear even in mild weather.

Biggest Loss—Conduction, next to evaporation, can be the cause of your biggest heat loss whenever your body comes in contact with a large cold mass. This loss can be easily prevented by putting distance between you and the cold objects. Don't sit on bare rocks; put padding between you and the ground or snow; be especially careful not to fall into water whether you're in a boat or crossing a stream. You need extra distance between your feet and the ground. Picture yourself as a hot water tank and your feet as the drain valve. Without proper insulation in your boots, your body heat drains through your feet into the ground. The same analogy applies when sleeping on the ground.

Wind—Convection, or wind currents, blow away heat from your body and right out of the clothing as well. Be prepared to put something between you and the wind. You can use a parka, tent, tree or anything which stops wind. Wind removes your heat in two ways. It blows it away and it speeds the evaporative process. More deaths are caused by the wind factor than from other cold conditions. A tragedy often occurs during a mild night which is accomplished by a moderate breeze. Without warm clothes you can easily survive a 50-degree emergency bivouac. But, if you experience a 20-mph wind, you face sub-freezing effects in what you expected to be a comfortable night.

Wind-chill charts are frequently published for outdoorsmen showing exactly what a windless temperature reading would be as the result of various wind speeds.

Breath—If you've observed quarterbacks breaking from their huddle on a freezing afternoon, blowing on their hands, this is a demonstration of the amount of body heat lost through respiration. The more you exhale, the more heat you lose. On the other hand, if you don't inhale, you won't receive the oxygen needed to make heat. But you can pace

your breathing. If you find that you're panting for breath, it may be a sign of over exertion and you risk the danger of exhaustion. High elevations will cause panting, which warns you to move more slowly. You can save a little of your heat if you breathe through your nose. This will also force you to move at a more comfortable stride. ●

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National Science Foundation
Office of Polar Programs
Washington, D.C. 20550

Staying Alive In The Arctic
American Petroleum Institute
From: Plant Deck Inc.
2135 S.W. Wembley Park Road
Lake Oswego, OR 97034

The Netsilk Eskimo
American Museum of Natural History
From: The National History Press
Garden City, New York

Surviving the Unexpected Wilderness Emergency
By Gene Fear
Survival Education Association
9035 Golden Given Rd.
Tacoma, WA 98445

Hypothermia
By Dr. T.G. Lathrop
Mazamas
909 N.W. Nineteenth Ave.
Portland, OR 97209

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Washington, D.C.

Air Force Manual (64-series)
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Washington, D.C. 20402

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Various books, ask for catalog
P.O. Box 1307
Boulder, CO 80302

Polar Guide
Department of the Air Force
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Randolph Air Force Base
Texas, 78148

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P.O. Box 1307
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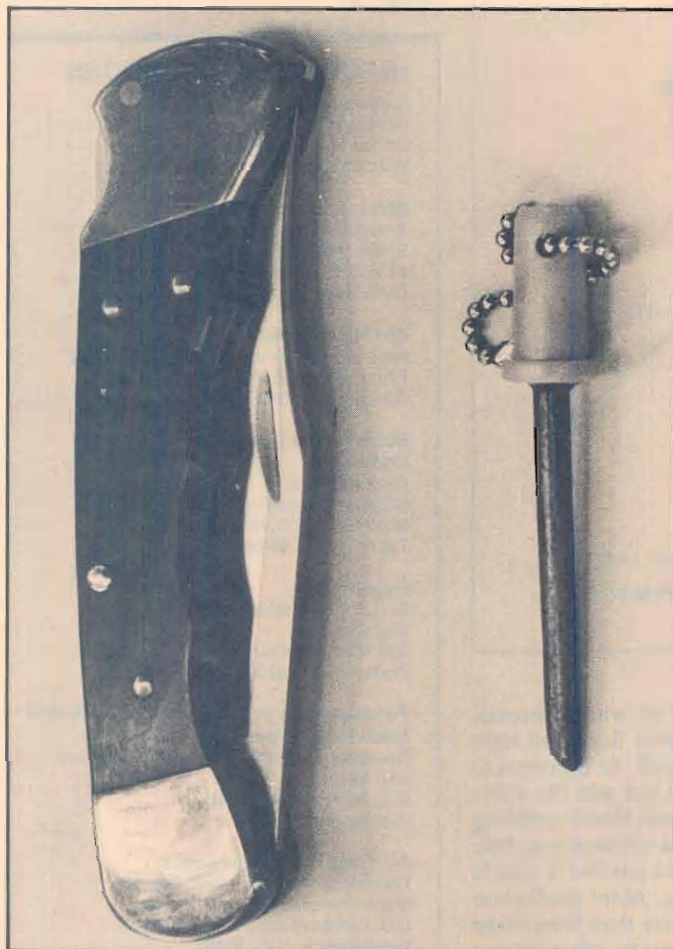
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Vapor Barrier System
Sierra (Club Magazine)
1983, March/April issue
Page 75

START A FIRE

The romantic picture of rubbing two sticks together doesn't correspond with reality . . .

By Tony Lesce



ABOVE—Plastic bags such as this zip-loc one protect matches very well and are inexpensive.

LEFT—Flint and steel work for some people. This flint and folding knife will strike a spark which must fall onto tinder and be blown into a flame.

STARTING A FIRE under primitive conditions is a serious problem both for those used to the soft and easy life of the 20th century and for primitive people who depend on it for survival.

The romantic picture of rubbing sticks together doesn't quite correspond to reality, nor does the bow-drill method suggested in some books. Those who claim that it's easy once you have the knack have never tried it.

In reality, starting a fire in the early days of man's history was so difficult that usually a fire was never allowed to go out once started. A member of the tribe would tend the fire, which served as a starter for fires needed by other members.

There are some practical difficulties involved with starting a fire without a match or butane lighter, and analyzing the task

will point them up. To start and maintain a fire, you need heat, fuel, and oxygen, as you remember from grade school science. Oxygen is the least of the problems, as it's freely available in air.

Heat, Fuel—Heat is a problem. To ignite anything, its temperature must be raised to the ignition point. The starting temperature may be anywhere from below zero to above 100 degrees F., depending on the climate and season. Starting paper requires between 1,000 and 1,300 degrees F., depending on the type of paper involved. It takes a lot of muscle, perseverance, and patience to do so with two sticks, and the sticks must be dry. Generating such heat is extraordinarily difficult, as practical tests show, and it can take hours with primitive tools.

Fuel is the second problem. Not everything will burn, and more importantly, not everything is suitable for kindling. Coal, for example, makes a very hot and useful fire, but igniting it requires using another material as a starter. This is usually wood, and it must be dry. A wood log is extraordinarily hard to ignite by rubbing it with a stick. Tinder is necessary.

Tinder can be wood or paper, both very convenient. In primitive conditions, paper will most likely not be available. Wood must be splintered or shaved for easiest ignition, and it must be very dry, as moisture will tend to defeat efforts at ignition.

Flint and Steel—A later development in fire starting was flint and steel. This method produces an extremely hot spark

Continued on page 36

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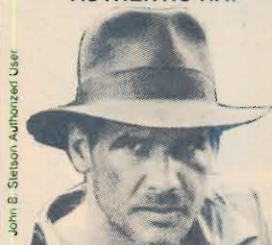
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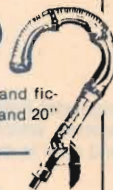
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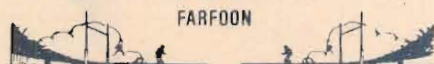
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-START A FIRE-

Continued from page 34



which still needs tinder and careful nursing to be successful, although it eliminates the tedium of producing friction for a long period of time. This system worked well enough for use in primitive firearms, with the spark falling into a flash pan filled with gunpowder. The flame followed a flash-hole down to the main charge. One critical point, again, was that the gunpowder had to be dry.

Matches—The invention of the match in the 19th century marked the modern era in fire starting. Matches are very familiar objects, and their action is obvious. They have one great vulnerability: moisture. Damp matches simply don't light, and enough water will dissolve the heads. Other than that limitation, they work well. They're cheap, produce a hot flame for

several seconds, and are very easy to use.

Having a flame usually eliminates the need for tinder. The tinder is supplied by the match-stem, whether it be wood or cardboard. For survival use, wood kitchen matches are better than paper ones, as they strike on any rough surface, unlike paper matches which need a special striking strip. The wood stem gives a larger flame, and lasts somewhat longer.

Keeping matches dry isn't a severe problem. Dipping them in wax, the classical method, is best for wood matches, and the wax furnishes extra fuel. Spraying them with paint or lacquer is another way, but it may cause the matches to give off noxious fumes when lit.

The best way is a waterproof container. A commercially made one is usually overpriced and doesn't hold many matches. A



ABOVE—Matches dissolve in water but a butane lighter is back in action in about two minutes.

LEFT—A solar cigarette lighter works in about five seconds but only for cigarettes, which are treated with a chemical for quick burning, and only in direct sunlight.

survivalist who wants to preserve thousands of matches will have to improvise, using plastic bags and sealing them with tape or heat. Zip-Loc bags have sealing strips which need only to be pressed together to form the seal. However, plastic bags tear easily, and a more robust container may be necessary.

Plastic freezer containers are the most expensive, at prices ranging from six for a dollar to several dollars each, but their large capacities offset their cost. A 35mm plastic film canister will hold matches in a convenient quantity as a "ready supply." For additional protection, all of these can be double-sealed with waterproof tape.

The Sun—One device often mentioned in books on campcraft and survival is the

Continued on page 68

-AR-15 9MM-

Continued from page 21

azine well and rear sight. The magazine well has been modified to accept the proper 9mm magazines. A filler block, which has the proper magazine receptacle installed within it, is placed in the magazine well of a standard AR-15 lower receiver.

A flip "L" type rear aperture sight is set for 50 and 150 meters. This sight can be adjusted for windage by rotating a notched wheel located on the right side of the carrying handle. The front sight is a rotary post type. It can be adjusted by pressing down on a detent and rotating the post sight in the desired direction. Both sights carry their own instructions next to them. Next to the sights are stamped either an "UP" or "R" (right), for the front and rear sights respectfully, and arrows pointing in the direction to move the strike of the bullet. How much simpler can they make it?

The flaw in both sights is that they were designed to be adjusted by a field expedient, in particular, the bullet of a .223 (5.56mm) round. Well, Colt retained the old sighting system and did not modify the sight adjustment mechanisms. Not that designing a sight that could be adjusted by a 9mm bullet is practical (implausible actually), but at least they could have made the sights capable of being adjusted by hand. At any rate, if you plan on making sight adjustments carry a .223 round, a special sight adjustment tool, or a very long sharp instrument (a penny nail works fine).

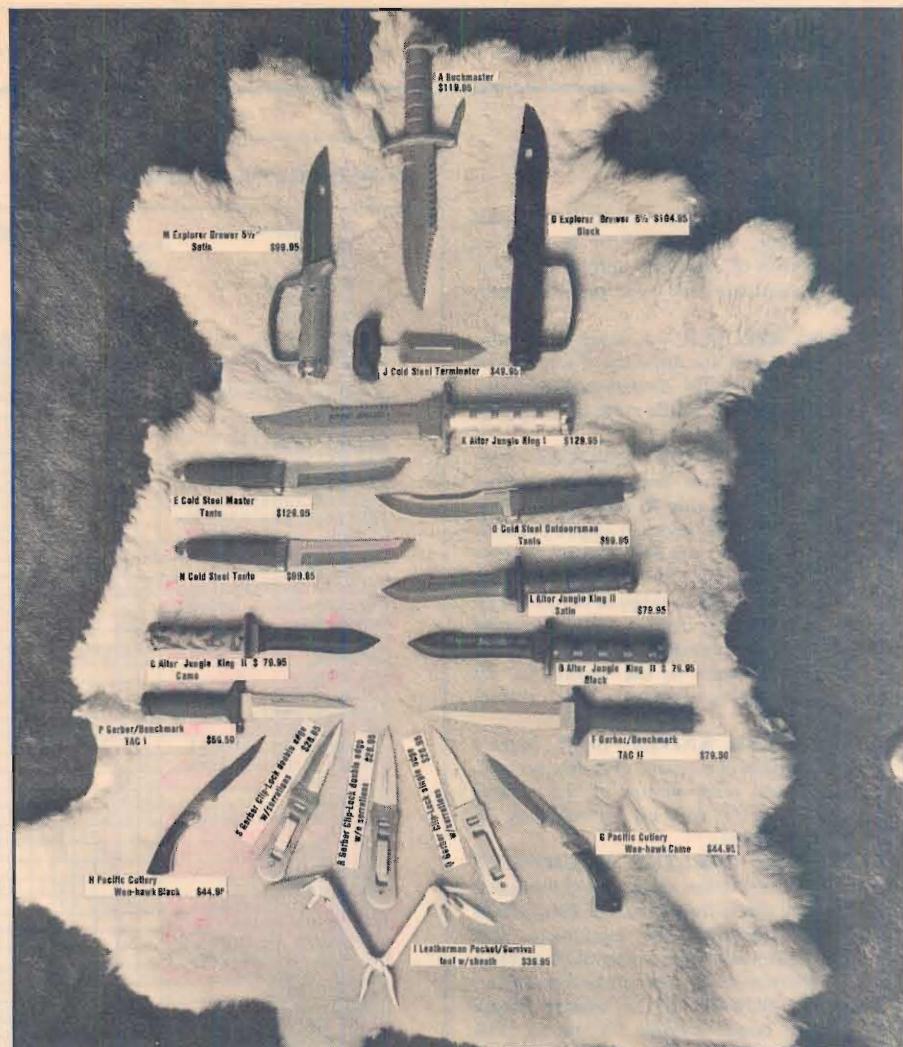
Identical Features—Other than the above alterations, the 9mm AR-15 is identical to the CAR-15. It disassembles the same as any AR-15 with the exception of the bolt having fewer parts than the standard bolt/bolt carrier. Even the cleaning rod is the same (.22). A .38 bore brush has been adapted to be used in conjunction with the rod.

The carbine also has the improved A2 series pistol grip which provides a very "comfortable" hold and it enhances good control of the weapon. The collapsible stock is the same too. However, the Colt does not provide quite the same compactness as do other 9mm carbines. And there is no forward assist mechanism provided with this version.

The 9mm AR-15 is shipped with muzzle cover, cleaning gear, sling, one 20-round magazine, instruction booklet, and a notice indicating that Colt will provide a case deflector for left-handed shooters upon request.

Colt's staggered column magazines are very similar in appearance to the UZI magazine but they are not the same and are not compatible with one another. It would have been nice if they were. The magazine has two viewing portals which indicate the

Continued on page 72



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-SURVIVAL CATALOGS

Continued from page 28

ATLANTA CUTLERY—Small in size and big in coverage. This slick little catalog has plenty of knives of every type and size covered well by descriptions and color photos. Nicely done.

BANANA REPUBLIC—A sleepy little catalog with humor and line drawings of some of the most durable, well built, clothes available anywhere. They may cost a little more but wear like iron.

BEEAMAN PRECISION AIRGUNS—Bee-man's catalog is more than just a catalog. Within the covers of this 90 page or so document is the recognized leader in airgun primers. Just about everything you ever wanted to know about airguns and how to use them is available in this one source. It also happens to include an excellent selection of airguns and accessories with complete specifications on each one. For new or old customers in the market for an airgun this catalog deserves your special attention.

BENCH MARK KNIVES—Bench Mark's "catalog" consists of a couple of brochures with information and color photos of the various knives made by this well known company. A price list is included.

BERRYMAN SHELTER EQUIPMENT

Berryman's information sheets are reproduced copies of spec sheets from Jarn and Plat, a firm which builds Swedish shelter equipment. The advertised equipment covers items such as blast valves, ventilation units, and protective doors.

BERRIEN BUGGY, INC.—Berrien Buggy builds dune buggy chassis for racing and pleasure. A small dozen page catalog covers their products and gives the reader an introduction to chassis selection. A separate price list is enclosed.

BIANCHI GUNLEATHER—Excellent color, excellent information and excellent products. A fine catalog for Bianchi gunleather and accessories, with a few other items thrown in for fun.

BOWJON INTERNATIONAL, INC.—Bowjon's two-color data sheets include all the information you need to select the windmill and pump combination that best fits your needs.

BRECK-RELIANCE—Breck-Reliance has 16 pages of useful items. The black and white pages have photo illustrations of the equipment and concentrates on food and medical items.

BRIGADE QUARTERMASTERS, LTD—Brigade's Catalogue 10 1985 is a technical work of art. Organization and presentation are outstanding. The care taken in the catalog also shows in the selection of over 200 items including the latest in military all weather gear, camos, footwear, knives, and much, much, more. While the catalog does contain a few gadgets and some "fun" items it is 95 percent hard survival gear of top quality. This is a "must have" catalog for the serious survivalist.

BUCKEYE SPORTS SUPPLY—Buckeye is an excellent place for dealers and individuals to buy good equipment at bargain prices. Their newspaper sized full-color advertisements are full of good deals on firearms, bows and other interesting items. A good place to shop.

CATALOG QUICK REFERENCE CHART

A-INFORMATION		****TOPICS****													T-EDUCATION														
B-WATER		H-CLOTHES		N-ELECTRONICS													U-ENTERTAINMENT												
C-FOOD		I-TOOLS		O-ENERGY													V-												
D-MEDICAL		J-CONTAINERS		P-TRANSPORT													W-												
E-OPTICS		K-LOAD GEAR		Q-RETREATS													X-												
F-KNIVES		L-NBCW/RADDEF		R-SPORTING GEAR													Y-												
G-WEAPONS		M-BALLISTIC GEAR		S-GADGETS													Z-												
CATALOG NAME		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
American Body Armor						2	3	2	3						3					3									
Aqua-Ponics				3																									
Atlanta Cutlery								3																					
Banana Republic											3																		
Beeman Airguns		4							4																				
Bench Mark Knives								2																					
Berrien Buggy																	2												
Berryman Shelter Eq.														1					2										
Bianchi Gunleather							1	3	1													1							
Bowjon International																	2												
Breck-Reliance			1	2	1		1			1					1	1				1									
Brigade Outermasters		1	1		2	2	3	1	4	1	4	3			1	1				2	4	1	1						
Buckeye Sport Supply					2	2	3	1			1					1				2	1								
Buggy Shop																	3												
Cabela's						3	2	3	4	2	1	2								2	2								
Campmor		2	1	2	1	1	2		3	2	2	3								3	2		1						
Cherokee								3																					
China Diesel Imports																3													
Clayton Surv. Serv's		4																											
Core Resource			1	2	1	2	2	2	3	2	2	2	3		1	1				1	2								
Countryside General					3				1			2	1								1								
Desert Publications		3																											
Dick Cepek		1	1								3	1					3		1										
Domestic		1	3	3							3																		
Don Gleason's Supply		1	1	1			2				2	3	2							3	3								
Dunn's						1	3	1	2	3	1	1	1					1		2	1								
Early Winters		2	2			4			3		2	3					1			3	4	2	3						
Earth Systems																			4										
Eddie Bauer						2	1		3	1	1	1			1	1	1			2	3		1						
Edmund Scientific						3									3						2	2							
Energy Sciences																	1									3			
Excalibur Enterprise								3		1							2												
Feather Enterprises							1	3				2																	
Gander Mountain						1	2	3	3								2			3	4		1						
Garrett Wade										3																			
Homesteaders		3	2	3	2		2	1		1	1	2		1	2					1	1		1						
J. C. Whitney & Co.										2							3												
John J. Meshna Jr.																													
Johnny's Speed & Ch.																		3											
Ken Nolan			1				3	1	2	1										2	2		2						
Kirkham's Products		1	1			2	1		2	1	3									3	3								
L. L. Baston Co.								3														1		1					
L. L. Bean						1	1		3		1										2	1		1					
Lancer Militaria		2						1	1				1									1		3					
Lindsay Publications		3																											
M & M Enterprises		1	1	1			2	2	1	1	1	1	1		2					1	1		1						
Matthews Supply Co.															3														
Mountain Camper												2	2	2							2	1		1					
Micro Info Concepts		4													2														
Military Supply Corp		2	1		2	1	2	2	2	1	1	2	1	2	1						1	1		1					
Newman's		1	1	1	2	1	1	1	2	1	1	2	1								1	1		1					
Outer Banks						1	1	1	1	1	1						2		2		2	2		1					
Paladin Press		3																											
Parallel Corp		2	1	1	2	1	2	2	2	2	2	2	2	2	2						2	2		1					
Parker Cutlery		1					3																						
Pocket Survival		4																											
Provisions Unlimited		2	3	3	2		1	1		1	1		2		1	2					1	1							
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Second Chance																													
Sherwood Internat'l						1		1	1	2	2	1	1	2	2	1					1		1						
Shotgun News										4																			
SI		3	2	2	2	1	1	1	3		2	2		2	1		2				1		1						
Sierra Designs							1		2			2									2								
Smith & Hawken		2	2								3																		
Smoky Mountain Works								3	1		1													3					
Southwest Rebuilders																													
SPA City Gun Sports						2	2	2	2																				
Sportsman's Guide		1					2	1	2											1		2	1		3				
Station 1																		3											
Steve's Surplus		1	1	1	3	1			1	3	2	1	2			1						1							
Strout Realty																													
Supply Depot			1	1	2	1			2		1	2									4								
Survival Center		2	2	4	1						2	2		2				3											
Survivalist Clr'hse		4	3	3	3	2	2	3	2		3	2		2	3	1	3			4	1	2	2						
Survival Outfitters		3	2	3	2		2	1			1	1	1			1						1		1					
Survival Systems		1			3							1	1																
Timberwolf						1	1	1	3	1	1	1	1								2	2		1					
U. S. Cavalry		1	1	1	2		1	3	1	3	1	2	3	1	1	1					2		3						
Valley Surplus			1	1	2		2	1	3	2	1	3	1	1							2								
Vector Pack Systems													3																
Western New Eq Solar																					2		1						
Yak Works			2	1	2	1	1		2	2	2									1	2		2	3		2			
BLANK=NO COVERAGE		2-AVERAGE COVERAGE													4=SPECIAL ATTENTION														
1=LIGHT COVERAGE		3=HEAVY COVERAGE																											

Continued on page 46

This, our special mini-catalog, contains season specials and items normally distributed by M & M Enterprises Corp. Please include \$1.00 for catalog and shipping.

CATCH - M & M's CATALOG FOR 1985



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CATCH-M&M's

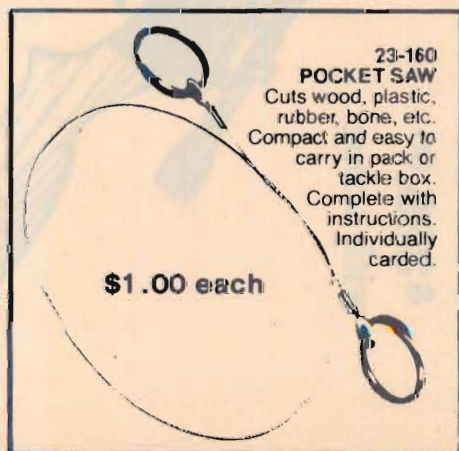
CATALOG for 1985



MILO MINDERBINDER'S
SPECIAL WEAPONS
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characters and
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First Printing



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Cuts wood, plastic,
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Compact and easy to
carry in pack or
tackle box.
Complete with
instructions.
Individually
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3" Blade

CCBF
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MAGNUM CROSSBOW

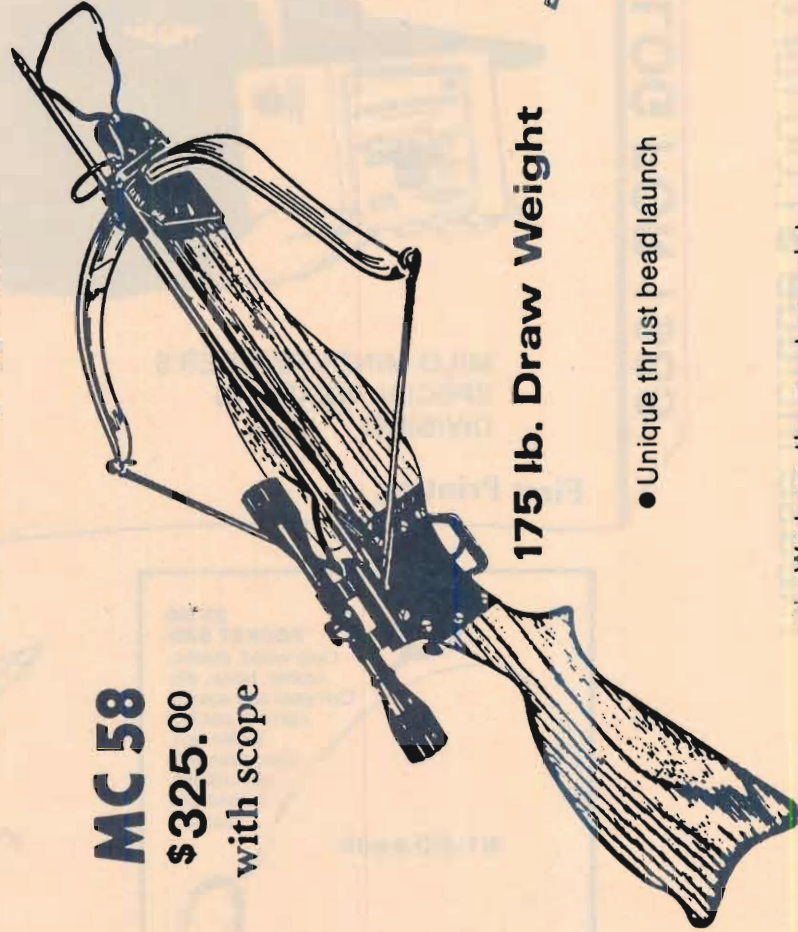
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(CG55)

A unique blend of tremendous power and classic beauty. The Magnum features a 175 lb. heat treated, steel alloy prod which develops speed of 220 fps using a 525 gr. hunting bolt. Impact energy is rated at 54.8 foot pounds — tops among crossbows currently available. Beautiful walnut panels enclose butt and fore stock. Etched lockwork plate and pre-mounted Bushnell 4x scope make this a weapon which is equally suitable placed over the mantelpiece or on the most demanding big game hunt.

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- Unique thrust bead launch

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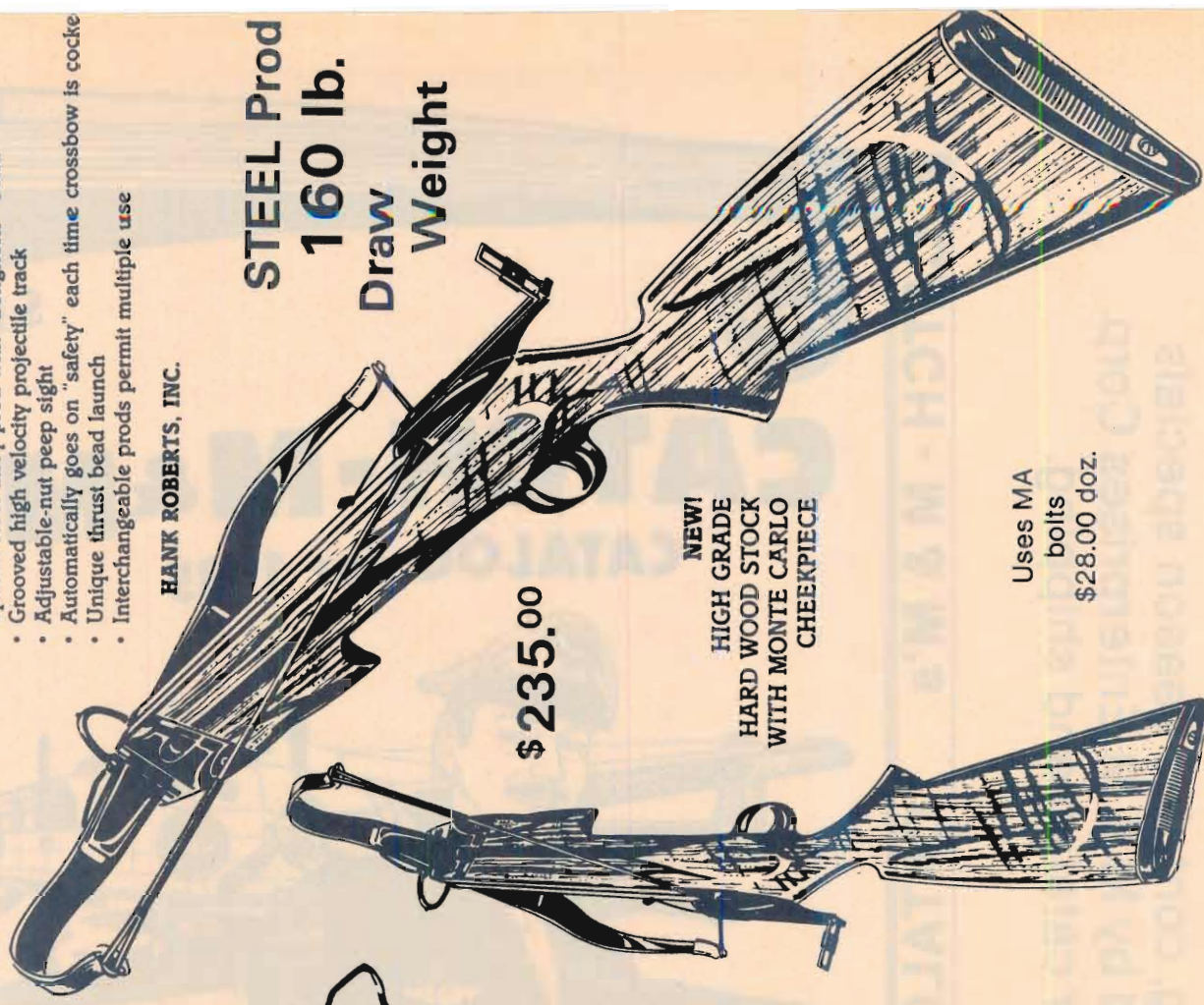
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Check these outstanding features:

- Cocking stirrup
- Special steel alloy prod with "Longhorn" bend
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- Adjustable-nut peep sight
- Automatically goes on "safety" each time crossbow is cocked
- Unique thrust bead launch
- Interchangeable prods permit multiple use

HANK ROBERTS, INC.

STEEL Prod
160 lb.
Draw Weight



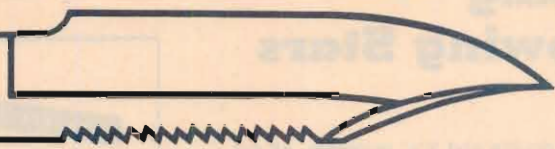
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bolts
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RV-100



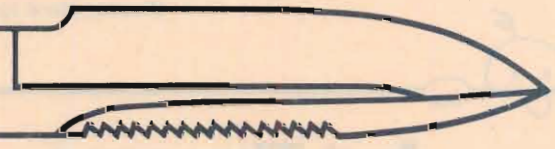
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FOR HANDLE INCLUDED.

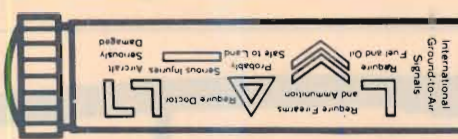
RV-101



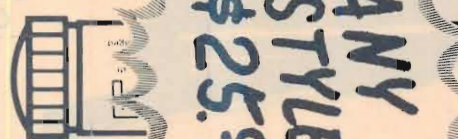
FREE POCKET SAW INCLUDED!

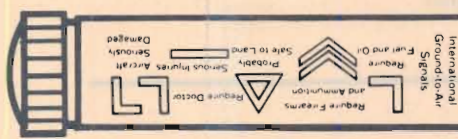
RV-102





International Ground-to-Air Signals
Require Fuel and Oil
Require and Ammunition
Require Firearms
Require Safe to Land
Require Serious Injuries Avert
Require Doctor
Require Damaged





International Ground-to-Air Signals
Require Fuel and Oil
Require and Ammunition
Require Firearms
Require Safe to Land
Require Serious Injuries Avert
Require Doctor
Require Damaged

**ANY
STYLE
\$25.00**

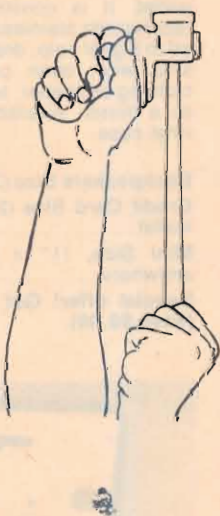
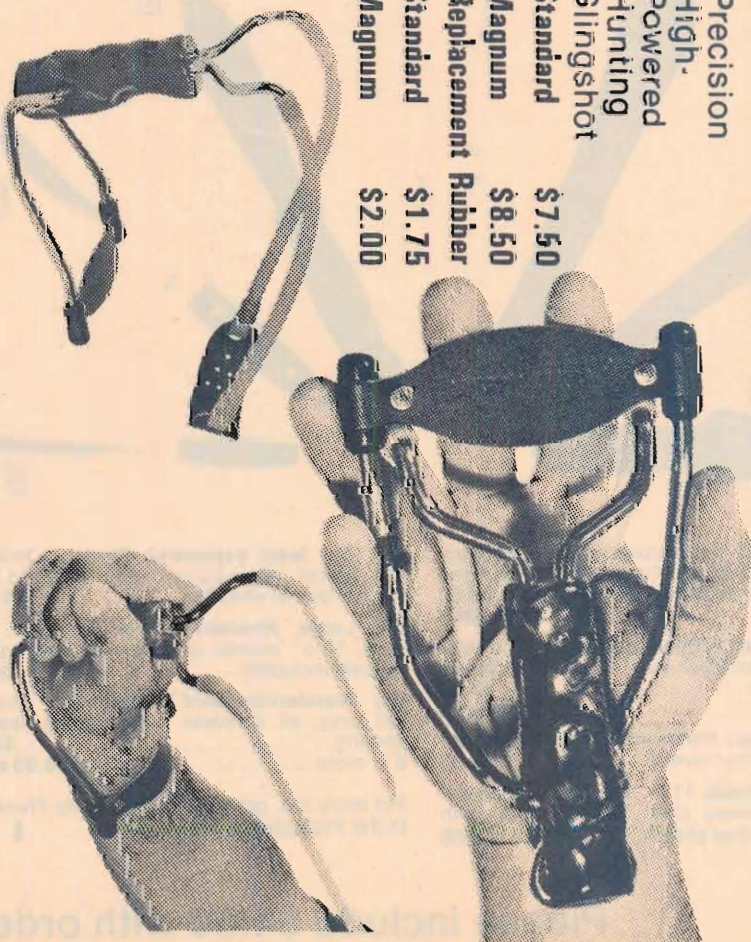
Rescue/Survival knife, 5 1/4" (133mm) 440 stainless steel blade (3.35mm blade thickness). Super tough molded VALOX® thermoplastic handle with International Ground-To-Air Emergency Rescue Signals. Build-in Watertight Compartment with precision luminous liquid-filled Compass Cap. Camouflaged CORDURA® nylon sheath with Compartment for sharpening stone (stone included). VALOX® is registered trade mark of GENERAL ELECTRIC. CORDURA® is registered trade mark of DUPONT.

\$37.50

POCKET ROCKET II

THE FOLDING WRIST SLINGSHOT

Precision High-Powered Hunting Slingshot	
Standard	\$7.50
Magnum	\$8.50
Replacement Rubber	\$1.75
Standard	\$1.75
Magnum	\$2.00



SLING PISTOL®

\$5.50

SLING PISTOL

Simply drop a BB into the barrel, grasp the elastic Power Chamber, draw, aim and then let go. The speed of the elastic power chamber is multiplied by a progressive velocity wave as it snaps through the barrel. Complete with Power Chamber, instructions, approx. 100 BB's.

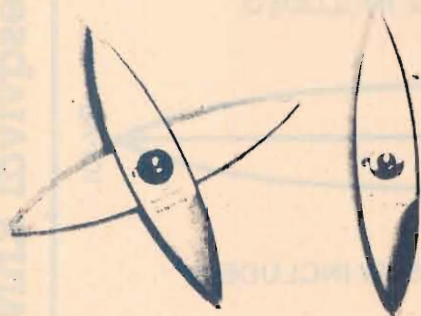
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pkg. of 2 \$2.00



Folding Throwing Stars

Folds into a double end $3\frac{7}{8}$ " projectile. All surgical steel..... \$3.00
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Samurai Sword Specials



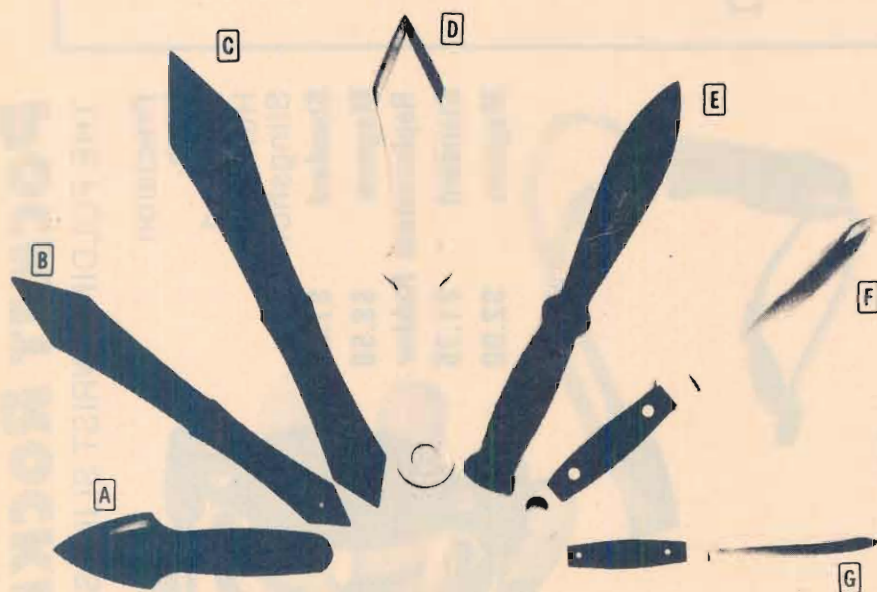
Display Only

Replica of Japanese Shogun swords, die cast metal blade and beautifully decorated handle and wooden scabbard.

Set of one small sword (28") and one large sword (41")..... \$60.00
 Wooden stand (optional) for display..... \$15.00



Just Throwers



(A) 6" Overall, but features a very wide, gun-blued, steel blade. The handle is wrapped with red plastic wire, leather sheath included... \$4.00
 6 or more..... \$3.00 each

(B) Black Dart Throwing Knife is 9" overall length, oxidized black steel, tapered blade with leather sheath..... \$3.50
 6 or more..... \$2.50 each

(C) Black Dart Throwing Knife, larger version of (B) is 10½" overall..... \$6.00

(D) Silver Streak, 11¼" overall, professional style, all stainless steel tapered blade with heavy-duty leather sheath..... \$6.00

(E) Our least expensive throwing knife is 10" overall, all gun-blued steel, wrapped handle (no leather sheath)..... only \$1.50

(F) Large Wooden-Handle Thrower, full tang, 10½" overall, all stainless steel handle (sheath included)..... \$6.00

(G) Wooden-Handled Thrower, 7½" overall, full tang, all stainless steel handle (leather sheath)..... \$3.50
 6 or more..... \$3.00 each

For more fun, get our booklet "Knife Throwing in the Professional Style."..... \$ 1.00

Survival Tool

... gives the outdoorsman 40 ways to stay alive!

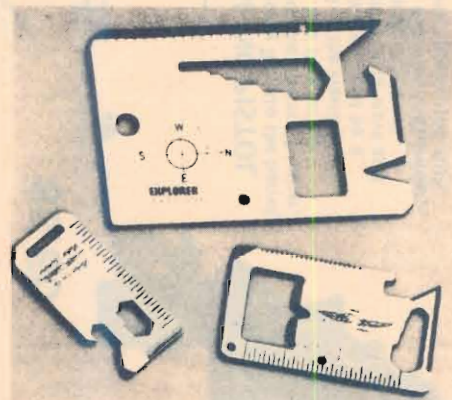
Unique executive gift item. Credit card sized with vinyl case. The tool is a complete survival system that is compact enough to fit inside your wallet. It is constructed from rust-resistant razor-grade stainless steel. The tool can be used to signal help, dress game, treat snakebites, strip wire, open cans and bottles, fashion clothing or shelter, turn screws and even serve as a mirror. Available in three sizes, all with vinyl case.

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Mini Size, (1" x 2") Convenient to carry anywhere..... \$6.00

Special offer! Get one of each for \$18.00 (save \$6.00).



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P-60 NJ Patch
4" \$2.00

NINJA WEAPONS

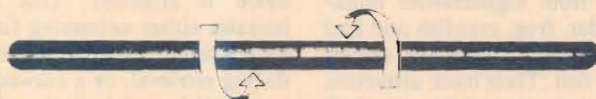


P-02A NJ Belt Buckle
Chrome \$9.00



NJ SWORDS

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W-200S Tempered and Sharpened w/Blackened Blade \$95.00
W-222 28" For Display Only \$60.00
W-220 Wood Practice Boken \$9.00
W-43 Sword Stand \$15.00

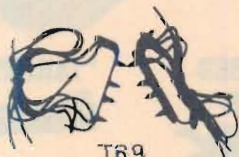


W-217 Ball Bearing Chain Hide-A-Chuck
12" long \$16.00 24" long \$18.00



W-224
Bakuhatu Gama
\$20.00

- Ninja Uniform
50% Poly 50% Cotton
Sizes: XS/S/M/L/XL
U-26B in Black \$30.00
U-26W in White \$35.00
U-26C Woodland Camo \$35.00



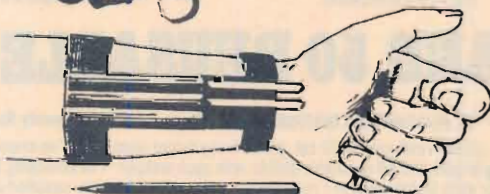
T69
NJ Foot Spikes
\$12.00



T70
NJ Climbing Claw
\$15.00



NJ Shoge Hook-Knife
W-223 \$18.00



W-227 Spike Darts w/Holster \$6.00

Include \$1.00 for Catalog and Shipping

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Local ordinances may restrict possession.
Check local laws before ordering.

Dealer prices available

FRESHWATER FORAGING

Continued from page 27

They have unlimited shelf life, a plus for survivalists.

Plugs may be broken down into the following basic categories. *Surface plugs* are productive fish capture tools, especially effective at night. Surface plugs represent floundering, injured bait fish, mice, frogs, or whatever is edible that plies the surface. Plopped, hopped, gurgled and buzzed around shallow structures, they excel at capturing many freshwater predators including bass, pike, pickerel, freshwater stripers, etc. Color selection recommended is black for night use, fog/clear for daytime, and red/white for dawn/dusk applications. Suggested models include Arbogast Jitterbug in 3/8-, 5/8-ounce Muskie size; Sputterbug/Buzzer in 1/4- and 5/8-ounce; Hula Popper in 3/8- and 5/8-ounce; Heddon Zara Spook in 3/8- and 3/4-ounce; and Crazy Crawler in 1/4- and 5/8-ounce in grey/brown flocked mouse finish.

Floater/Divers—These are characterized by floating at rest and diving under on retrieve. Such action provides for control in shallow fishing locales, over submerged weed beds, about visible surface structure such as pads, logs, etc. Retrieval variations include 1) surface popping, which consists of allowing the lure to float at rest until all ripples are gone. Then twitch the rod tip on a tight line to create the effect of an injured fish making a concentric ripple. This can be repeated during a slow retrieval interspersed with numerous pauses.

A more pronounced surface popping can be achieved by including a more severe darting and reeling action with pauses of sufficient duration to allow the lure to surface with an audible "pop." 2) Standard reeling at a variety of speeds including several casts to the same locale. Include, at times, pauses every 2 to 10 feet of retrieval. Other variations of retrieval include sharp reeling (ripping), and steady reeling with pronounced sharp, fast pulls of rod tip that cause the lure to dart sharply. In many instances this will cause the predatory fish to strike by reflex. Recommended floater/divers include Rapala Balsa Wood lures in No. 7(2 3/4-inch), No. 9(3 1/2-inch), No. 11(4 3/8-inch), No. 13(5 1/4-inch), No. 18(7-inch) with silver and gold being the two most popular production finishes.

Sinkers—Sinking plugs (specific gravity is greater than water) sink at a variety of speeds (descent rates at feet/inches per second), all depending on construction. Sinking plugs reach fish at greater depths than many (not all) floater/divers. After the cast, the angler "counts down" to the desired fishing level. The angler casts out ▶

FRESHWATER FORAGING

Continued from page 27

his sinking plug. The known rate of lure descent is about one foot per second. He counts out the desired number of seconds before the retrieval is begun. The plug is now at the desired fish feeding depth.

Sinking plugs also adapt to a variety of trolling/jigging procedures. Sinking lures recommended include Rapala Countdown No. 7(2 3/4-inch), No. 9(3 1/2-inch), and No. 11 (4 3/8-inch); Rebel lures in all sizes (3 to 6 inches); and Miro-Lure in 3 5/8-, 4 1/4- and 5-inch medium sinker in blue flash finish.

Deep Plugs—Deep diving plugs usually float at rest and dive deeply via the aid of a large "bill" or "lip." Other deep diving plugs sink as well as being equipped with the oversized diving lip. These deep water prowlers (some call them deep running "crankbaits") excel at reaching fish holding along deep sunken structure, including dropoffs, reefs, river channel edges and holes. In most instances, one cranks the reel like hell to get the lure down to maximum depth, then slows the retrieval while the bait bumps and grinds or runs parallel to known or suggested fish holding structure. Some suggested deep divers include Miro-Lure Deep Diver 3 5/8- to 6-inch, Storms Wiggle Wart in 3/8-ounce finish in

crayfish and Tennessee shad, and their Hot 'N Tot. Also effective is Bomber Model A in crayfish, Tennessee shad and blue flash shad.

Plastic—Soft plastic baits offer not only great fishing capture potential to the angler, but also great storage possibilities. If stored away from excessive heat/sunlight, their shelf life can approach 15 to 20 years before they begin to disintegrate.

include Mann's 4-, 6-, 8-inch Auger Tail worms in blackberry, black grape, blackberry wine and motor oil; Mister Twister bait fish imitating Sassy Shad in 1-, 2-, and 3-inch sizes in white or pearl gray back, clear silver flake and black; and original Twisters in 3-, 4-, 6-inch sizes in black, purple and yellow hues. Other soft bodied lures include plugs and imitators of frogs, minnows, crayfish, mice, etc., produced by Burke, Snag-Proof, and Plummer.

'Try to avoid subfreezing temperatures . . .'

Also try to avoid subfreezing temperatures as well as storage sites near electric motors in operation. The motors emit gases that break down plastics and rubber. Such "critters" vary from nightcrawler imitations to salamander, frog, crawfish and bait fish to twirling tails of unknown origin, that dupe many fish. Their basic attraction consists of a natural-sounding "splat" upon water entry. They can be cast, trolled, drifted and jigged with or without extra weight.

Soft constructed lures for survivalist use

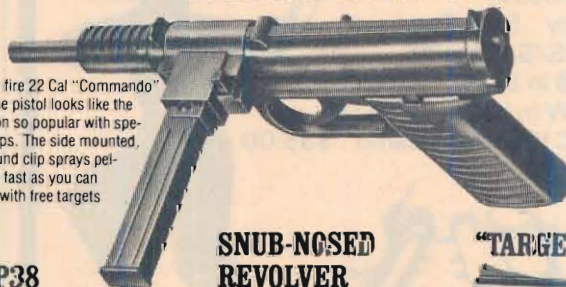
Jigs—Jigs, are multi-use fresh water fish capture lures composed of a weighted metal head (usually lead or lead alloy) to which a skirt of bucktail, feathers, or nylon is attached. This artificial bait imitates either swimming fish (or shrimp) by cranking, pausing and darting the jig during retrieval, or a crawling critter such as crawfish or insect (crawling along the bottom).

Popular all purpose jigs excellent for survival use are Mister Twister Bucktail Jigs in 1/8-, 1/4-, 1/2-ounce in colors of

ON TARGET

This rapid fire 22 Cal "Commando" type machine pistol looks like the famous weapon so popular with special assault groups. The side mounted, detachable, ten round clip sprays pellets into the target as fast as you can pull the trigger. Comes with free targets and 50 reusable pellets.

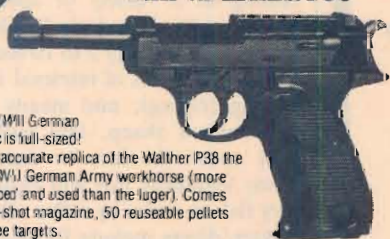
SEMI-AUTOMATIC MACHINE PISTOL



JUST \$4.95 EACH

THE WALTHER P38

This WWII German classic is full-sized! It's an accurate replica of the Walther P38 the real WWII German Army workhorse (more produced and used than the luger). Comes with 8-shot magazine, 50 reusable pellets and free targets.



SNUB-NOSED REVOLVER

This accurate target pistol looks and feels like the famous snub nosed revolver in use by most detectives. The cylinder swings out to take eight 22 caliber pellets. Comes with free targets and 50 reusable pellets.



"TARGET MAGNUM" REVOLVER

This hard hitting target pistol looks and feels like the "magnum revolver" in use by most highway patrols. Extra long target barrel and he-man grips combine to give unusual accuracy. The easy-load cylinder reloads quickly with 10 pellets. Comes with free targets and 50 reusable pellets.



FREE: TARGETS AND 50 REUSABLE PELLETS

Each of these .22 cal. pellet firing target weapons looks and feels like the real thing. Each comes with targets and 50 reusable plastic pellets. No permit is required, please indicate your age. Purchase price promptly refunded if you are not completely satisfied. Just \$4.95 each, plus 95¢ each for postage and handling.

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YES, please rush me the 22 cal. pellet-firing target weapon(s) I've checked below. Also include my FREE targets and 50 reusable pellets with each weapon. I'm enclosing \$4.95—plus 95¢ for postage and handling for each target weapon I'm ordering. If I'm not completely satisfied you'll refund my money right away.

- ☐ TARGET MAGNUM REVOLVER
☐ SNUB-NOSED REVOLVER
☐ SEMI-AUTOMATIC MACHINE PISTOL
☐ WALTHER P38

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\$ TOTAL ENCLOSED _____

Not sold in New York City. No permit required. Michigan State residents add sales tax.

black, white, brown or orange, as well as the Mister Twister Maribou jigs in 1/16-, 1/8-, 1/4-ounce. Basically, cast or lower jigs along the edge of a dropoff, weed bed, etc. Hop and dart them in with a variety of retrieval speeds. To take advantage of both schooling behavior of bait and game/food fish, use a double-jig rig. The secondary (dropper) jig (usually lighter than the main one) is tied off on stiff monofilament (extension blood knot) to clear the main leader. Jigs are effective in open water for walleye, large trout, and bass, as well as for fishing through the ice.

Spinner Baits—These are lures that produce results under a variety of angling conditions. Essentially, one or two free-floating metallic or plastic spinner blades (silver, gold, copper, bronze, or painted white, black, or with a variety of fluorescent shades) are mounted on a "skirted" upshot hook that is weighted for casting and depth probing. This lure, a spinner variation, can be "buzzed" through shallow water sections, bounced along drop-offs, or jigged in a deep hole, thus covering the majority of fish habitation situations. Of merit, is the spinner bait when used along dropoffs and ledge edges. Many predatory fish (bass, walleye, etc.) will engulf the lure "on the drop" (while the bait sinks, the angler must carefully watch and feel for the light hits usually associated with the drop). Recommended spinner baits for survivalist use include Bush Hog 1/2-ounce single chrome spinner, black or white skirt/body, and Strike King 3/8- and 5/8-ounce single bladed chrome spinner used in conjunction with skirt/body in yellow, black, and white.

Flies—Artificial flies, streamers, poppers are designed for delivering via the flyrod, either by floating or sinking line. They are imitators of insects, bait fish, amphibians (frogs), as well as small mammals (mice and voles). These artificials are fabricated from fur, feathers, etc. Various survival scenarios might dictate the use of rod and reel instead of cumbersome netting and trapping, all due to the need for mobility.

Flies, dry or floating, duplicate hatched aquatic or terrestrial insects. "Dries" are usually presented by a floating level (L), weight forward (WF), or double taper (DT) fly line, with the aid of a tapered monofilament leader 6 to 12 feet in length. Floating lines are one of the basic tools, as they allow productive fishing near or on the surface for a wide variety of fish. Selected dry fly assortment for survival trout fishing include Bivisible black and brown, Black Fur Ant, Black Gnat, Light Cahil, Hendrickson dark and light, Quill Gordon, Royal Coachman, Adams, Mos-

Continued on page 67

ATTENTION MAG LITE BUYERS

You already know Mag-Lite models have been universally accepted as the world's most versatile, reliable, and useful flashlights. Their sophisticated optics, economy, and rugged reliability have made them the choice of professionals and consumers everywhere. Great Lakes Dist. is a full line distributor. We stock all models plus every accessory. These include belt hangers, traffic wands, vehicle clamps, lanyard ring caps, Krypton bulbs and more.

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Mini-mag with \$5.00 nylon sheath \$16.95
both offers include shipping.

Free information on Mag-Lites. Or \$2.00 for catalog with survival gear, knives, etc. Dealers inquire Mastercharge or Visa.

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One day, survival may depend on the right reading.

The PDRM 82 is a microcomputer-controlled portable dose rate meter developed by Plessey to accurately read radiation levels.

This rugged instrument has been designed for post incident monitoring of civil defense, military and survival applications.

This waterproof instrument allows easy decontamination by full immersion in water.

Equipped with automatic self testing and dose rate rising and falling indications, it is ideal for patrolling radiation-affected areas. The unit is battery operated, with a life of approximately 400 continuous hours.

The meter has been tested to UK Military specifications and is nuclear hard. Centigray (cGy) is metric equivalent of Rad/Roentgen.

 **Quillory & Associates**
P.O. Box 591184
Houston, TX 77259-1184



Continued from page 38

BUGGY SHOP—BIG is the word for the Buggy Shop's 256 page catalog covering all aspects of constructing, modifying, or designing one of those super all-terrain VW powered scout cars. Complete coverage with pictures and illustrations in black and white. Lots of descriptive paragraphs to assist in your shopping.

CABELA'S—Cabela's 86 page catalog is heavy into clothes and sports items. Color pictures illustrate the informative paragraphs describing a wide variety of camping and hunting gear. Cabela puts out seasonal catalogs so just one doesn't cover everything.

CAMPBOR—Campbor offers 80 pages of close spaced paragraphs and black and white line drawings describing a vast array of camping and sporting gear. The categories covered are many and the coverage is complete.

CHEROKEE GUN ACCESSORIES—Cherokee offers accessories to dress up, modify and improve your assault or battle rifle. Although not really a catalog the six loose pages contain detailed descriptions, test reports and illustrations in two-tone giving the shopper plenty of information. Write in and get your note from the Chief.

CHINA DIESEL IMPORTS—If you can get the fuel China Diesel will sell you the power plant to match your needs. The package consists of 30 pages of color photos and data sheets.

CLAYTON SURVIVAL SERVICES—Bruce Clayton's Survival Service issues a twelve page catalog listing hard-hitting survival information in hard copy and microfiche.

CORE RESOURCE—Core Resource issues small catalogs several times a year covering their products. Good descriptive information and mono-chromatic photos let the buyer know what he is looking at. The items cover a wide range of necessary survival equipment.

COUNTRYSIDE GENERAL STORE—Countryside General Store supplies everything from skunk traps to spud spinners. The 30 page catalog covers the items with information and photos, some in color. Farming implements and food preparation are the strong points.

DESERT PUBLICATIONS—Now combined with Bill Moore Publications, this is a catalog of books on military, survival, and other interesting topics. The emphasis is on weapons, stealth, and combat.

DICK CEPEK—Dick Cepek has been a well known name in the four-wheel-drive and off-road world for many years. His catalog illustrates why. If you have a need for equipment to outfit your survival vehicle from the tires up, take a look at this vehicle shopping center on paper.

DOMESTIC—Domestic has a unique package of two catalogs in one. One side of the 45 page black and white catalog deals strictly with water supplies and storage. Flip it over and you find a catalog of gardening supplies. A great pair of catalogs under one cover.

DON GLEASON'S CAMPERS SUPPLY—Packed with camping and sporting items, this catalog has a wide selection and plenty of information on each item. An excellent all-round catalog for sporting equipment, tools, and more.

DUNN'S—With color pictures and descriptive paragraphs Dunn's catalog shows its

varieties of sporting goods and other interesting items in 66 pages.

EARLY WINTERS—Thick with color pictures and descriptions, the Early Winters catalog lives up to the reputation of the company as one of the best of the outdoor outfitters. Plenty of up to date camping gear and the latest gadgets and information.

EARTH SYSTEMS, INC.—Earth Systems' Catalog is actually an information package on a unique owner-built underground dome house. The package is complete and covers all the information the shopper needs to decide if this is the system for him. Color photos and design drawings are well done.

EDDIE BAUER—Slick, colorful and full of fun items the Eddie Bauer catalog is heavy into clothes and useful gadgets. Short paragraphs and color photos cover all 116 pages of this entertaining catalog.

EDMUND SCIENTIFIC—Edmund Scientific has been around for a long time and its selection of useful and interesting items continues to grow. Medical, solar, optical, or electronic gear can be had along with many other items described and pictured in this 47 page color display.

ENERGY SCIENCES—Energy Sciences has 16 pages of solar cells and many items the cells can power. Such items range from an air cooled safari hat to a mini refrigerator and food warmer.

EXCALIBUR ENTERPRISES—Need to see in the dark? Excalibers little mono-chromatic catalog describes and pictures the whole range of night vision devices.

FEATHER ENTERPRISES—Feather Enterprises, small sized, 33 page, black-and-white catalog is heavy into weapons accessories and surplus load gear. Photos and informative paragraphs educate the reader to the items available.

GANDER MOUNTAIN, INC.—Gander's twenty-fifth anniversary catalog is a colorful salute to a successful sporting goods retailer. One hundred and four pages of color photos and descriptive information cover the hunting and sports items available through Gander.

GARRETT WADE—Tools for the woodsmith. Garrett Wade shows their wares with over 200 pages of color photos with detailed descriptions of the finest hand and electric wood working tools available anywhere.

HOMESTEADERS WAREHOUSE—Homesteaders Warehouse is a very well balanced catalog covering a wide range of items. The 75 page black and white catalog contains lots of pictures and descriptive paragraphs describing useful items by the score.

J.C. WHITNEY & CO.—J.C. Whitney probably holds the record for most catalogs published in any one year. They put out black-and-white pages with descriptions and line drawings of hundreds of items for every conceivable vehicle. In addition to their large overall catalogs they issue special catalogs for motorcycles, vans, jeeps, dunebuggies and other vehicles.

JOHN J. MESHNA—Seventy-two pages of descriptions and pictures listing an assortment of unusual items in optics and electronics. Everything from infrared image tubes to Model 33 Teletypes are illustrated in black-and-white in the Meshna electronics surplus catalog.

JOHNNY'S SPEED AND CHROME—

Johnny's has put together a huge catalog of items for offroad vehicle accessories. This 258 page black and white catalog describes hundreds of items for dune buggies and motorcycles from gas tanks to exhaust systems. A separate twenty-five page price list is included.

KEN NOLAN, INC.—Ken Nolan, Inc. displays many useful items with black and white and color photos and plenty of descriptive paragraphs. Thirty-two pages covers military and sports items in detail.

KIRKHAM'S OUTDOOR PRODUCTS—Kirkham's Outdoor Products illustrates hundreds of useful outdoor sports items in fifty pages of color photos and descriptions. Most useful items are the quality hardware and materials for Do-It-Yourselfers.

L.L. BASTON CO.—L.L. Baston Company produces a small format sixty-four page catalog full of items in black and white sketches and plenty of descriptive paragraphs.

L.L. BEAN, INC.—The L.L. Bean catalog is full of plush clothes and other sporting items illustrated with color photos and descriptive paragraphs. Seventy-two full pages in small format cover hundreds of items.

LANCER MILITARIA—Lancer Militaria has a large format, black and white, sixty-four page catalog covering a variety of interesting items with sketches and informative paragraphs.

LINDSAY PUBLICATIONS—Lindsay catalog of Technical Publications contains 96 pages describing the contents of hundreds of books and manuals covering technical topics from building a paper clock to steam engine design. Black and white photos help illustrate the complete descriptive text.

M&M ENTERPRISES—M&M's little blue, black and white catalog covers its list of ballistic gear, knives, and crossbows with explanations and pictures.

MATTHEWS POLICE & SUPPLY CO.—The Matthews ballistic gear catalog covers the necessary data to purchase bullet proof vests in a few pages and pictures. Test data is also included.

MOUNTAIN CAMPER—Thirty-one pages of camping gear in living color. Clear information and descriptions of tents, packs, clothes, and other gear.

MICRO INFORMATION CONCEPTS—MIC, closely associated with Pocket Survival, has a large format, black-and-white catalog covering microfiche maps, books, and projectors. Excellent descriptions and photos with "how to" information on microfiche production is included.

MILITARY SUPPLY CORP.—MSC's catalog is made up of 46 pages of descriptions and line drawings of items including Kevlar helmets and combat boots. MSC lives up to its name as a Military Supply Corp.

NEWMAN'S—Newman's G.I. Supply catalog contains 24 pages of camping equipment and military gear. A good catalog for comparative shopping.

OUTER BANKS—Outer Banks is the catalog for outfitting the floating retreat. Basically, this large catalog covers items for the water borne recreational vehicle. However, many of the items also apply to us "landlubbers."

Continued on page 48



The material in these 3 volumes was gathered for the CIA and Special Forces during the Vietnam War and represents state-of-the-art improvised munitions even today. Volumes 1 and 2 are reproduced from the original loose leaf notebooks furnished our covert agents while Volume 3 contains 40 all-new articles. Each book is an outstanding reference work in its own right. Together, they represent a virtual encyclopedia (over 450 pages) of improvised explosives, detonators, time delay devices, firearms, silencers and much, much more.

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SURVIVAL CATALOGS

Continued from page 46

PALADIN PRESS—Paladin Press, one of the original survival publishers, lists 33 pages of books on many subjects applicable to the survival oriented reader. Line drawings and photos as well as full descriptions give the shopper all the information he needs.

PARALLEX CORP.—With 48 pages of color pictures and descriptive paragraphs Paralex covers almost every facet of survival in the packed catalog. Although the coverage is light on each particular group of items it is useful for the shopper that likes everything in one place.

PARKER CUTLERY—Parker Cutlery lives up to its name with 80 pages of descriptions and color pictures of just about every type of knife available. If it has a point or a blade this is a good place to find it.

POCKET SURVIVAL—This is the original catalog that commercially combines Survival and Microfiche. Small in stature and large in value this concept deserves special attention from anyone building a survival library. The Dallas based company continues to expand its extensive list of publications and to provide excellent service to its customers. Unique.

PROVISIONS UNLIMITED—Provisions Unlimited has two catalogs. Both catalogs have extensive descriptive information on a small number of excellent products heavily covering two important topics slighted by many others, food and water.

REI COOP.—Since 1938 the REI Cooperative has been serving its customers with high quality service and products. The ninety-six page catalog is filled with color photos and information on hundreds of useful products.

RUVEL & CO.—Ruvel offers six-three crammed pages of commercial and military surplus with good descriptions and black-and-white drawings and pictures to illustrate the goods. A wide range of equipment and some hard to find items.

SAFARILAND—Safariland Ballistics, Inc. specializes in Kevlar gear for ballistic protection. The color catalog contains detailed descriptions of the tests, specifications, and equipment with color photos of a variety of products.

SECOND CHANCE—Second Chance's "catalog" is actually a series of information pamphlets detailing their ballistic armor with color pictures and other useful information. As a means of advertising their products a pamphlet of documented reports is included which makes fascinating reading.

SHERWOOD INTERNATIONAL—Sherwood's catalog is reminiscent of a newspaper sales section. Good information, pictures and sketches make this a good place to shop for surplus items and some unusual, hard to find knickknacks.

SHOTGUN NEWS—What can anyone say about Shotgun News. It is a one of a kind weapons shopping center. If you are in the market for a firearm of any description, start looking in the Shotgun News. Three times a month this 250 page "classified ad" is published for the benefit of the firearms shopper who has plenty of time to do comparative shopping.

SI—SI, or Survival, Inc., issues 25 or so pages of well described and illustrated survival

items, many which are on limited sale, every couple of months. The items and coverage change from catalog to catalog so get on the mailing list and wait for your deals to arrive.

SIERRA DESIGNS—This is a slick catalog with high quality sporting gear. This is for the outdoorsman with tents, backpacks, sleeping bags and more.

SMITH & HAWKEN TOOL COMPANY—Full color photos and detailed information on tools of all descriptions are featured in Smith & Hawken Tool Company's thirty page catalog.

SMOKY MOUNTAIN KNIFE WORKS—From the "family" portrait on the front to the throwing stars on the back, this catalog of bladed items is for fun and frolic. Entertaining and full of unusual items.

SOUTHWEST IMPORT REBUILDERS—Southwest Import Rebuilders will sell you the rebuilt VW engine your heart desires for that escape vehicle. Fourteen monochrome pages show pictures and listings of all the parts and engines of various ratings.

SPA CITY GUN SPORTS—Ten pages of up-to-date items ranging from camo clothes to air-guns. Easy to read and make decisions due to light coverage and good quality.

SPORTSMAN'S GUIDE—Eighty-eight full color pages cover many well described items. Sportsman's Guide is heavy into the entertainment field and sporting items.

STATION 1—Station 1 gives you 263 pages of frames, bodies, parts, and anything else required to build that VW powered Fast Attack Vehicle, Scout Vehicle or pleasure dune buggy you always wanted. A huge, complete catalog for the do-it-yourself vehicle builder.

STEVE'S SURPLUS—Steve Pedergrana has put together 22 packed pages of genuine military surplus items and medical equipment. Good descriptions aid the buyer in his selection. A good place for comparative shopping.

STROUT REALTY—Are you looking for rural property? Try Stour's 265+ page catalog of property descriptions covering rural property all over the United States. This is a good place to check out the price of various types of retreat property.

SUPPLY DEPOT—Supply Depot's small catalog is made up of a few pages of sketches and information on the standard range of surplus items. Another source to check for price comparisons.

SURVIVAL CENTER—The Survival Center offers various shelters and equipment in a small pamphlet filled with photos and drawings. A special subject catalog.

SURVIVALIST CLEARINGHOUSE—This is one of the "don't miss" catalogs. Its 91 pages are filled with every type of survival item, from knives and firearms, to lighting, cookery, bomb shelters, NBC equipment, storage food, generators, gold and silver coins and bullion, outstanding optical and home security equipment and much more too diverse to mention here.

SURVIVAL OUTFITTERS—Survival Outfitters catalog includes 50 pages of descriptive paragraphs and pictures in black and white. It has an impressive range of food, water and firearms items.

SURVIVAL SYSTEMS—Survival Systems is almost exclusively a medical equipment and

information catalog. It is full of helpful descriptive paragraphs and black and white pictures of many surgical and medical items.

TIMBERWOLF—Timberwolf Cutlery and Sporting Goods has a full sized black and white catalog with 60 pages of photos and short descriptions of a variety of items.

U.S. CAVALRY—U.S. Cavalry is an easy catalog to enjoy. Over 115 slick pages cover a wide variety of "surplus" and current military items with descriptive paragraphs and color photos.

VALLEY SURPLUS—Light on information and long on surplus. This catalog is made up of a simple list of surplus items with a minimum of information. Compact and extensive it works well for the shopper that knows what he wants and is looking for a place to buy.

VECTOR PACK SYSTEMS—Vector Pack Systems, a division of Lowe Alpine Systems, Inc. supplies the shopper with 11 pages of data on some of the best back-packs in the world. Black and white sketches of the systems with descriptive paragraphs whet the appetite for more information.

WESTERN NEW ENGLAND SOLAR—Western New England Solar's information package illustrates in color and black and white the advantages of using solar cells. Power for the retreat is the message in these pages.

YAK WORKS—Yak Works has a nicely done 68 page catalog which uses beautiful color photos and large descriptions to illustrate their quality camping gear, gadgets, and clothes.

CATALOG ADDRESS LIST

American Body Armor
135 N. New York Ave., Dept. ASG
Halesite, L.I., NY 11743
(516) 271-0019

American Outdoors
Box 1448—Dept. A, Dept. ASG
Selma, AL 36702
(800) 633-2246

Aqua-Ponics, Inc.
17221 E. 17th St. Dept. ASG
Santa Ana, CA 92701
(714) 541-5169

Atlanta Cutlery
Box 833, Dept. ASG
Conyers, GA 30207
(800) 241-3595

Banana Republic
Box 77133, Dept. ASG
San Francisco, CA 94107
(800) 527-5200

Beeman Precision Airguns, Inc.
47 Paul Drive, Dept. ASG
San Rafael, CA 94903
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Continued on page 50



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SURVIVAL CATALOGS

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100 Calle Cortez, Dept. ASG
Temecula, CA 92390
(800) 854-8545

Bowjon International, Inc.
2829 Burton Ave., Dept. ASG
Burbank, CA 91504
(213) 846-2620

Breck-Reliance
P.O. Box 415, Dept. ASG
Cloudfcroft, NM 88317
(505) 682-2211

Brigade Quartermasters
266 Roswell St., Dept. ASG
Marietta, GA 30060-9988
(404) 428-1234

Buckeye Sports Supply
Box 6060, Dept. ASG
Canton, OH 44706
(800) 321-0690

Buggy Shop
11433 Concord Villabe Ave., Dept. ASG
St. Louis, MO 63123
(314) 842-0200

Cabela's
812-13th Ave., Dept. ASG
Sidney, NE 69160
(800) 237-4444

Campmor
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Paramus, NJ 07653-0999
(800) 526-4784

Cherokee Gun Accessories
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Redwood City, CA 94061

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Jamul, CA 92035
(619) 464-6030

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Mariposa, CA 95338

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Box 4526, Dept. ASG
Mountain View, CA 94040
(415) 961-3763

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Waterloo, WI 53594
(414) 478-2115

Desert Publications
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Cottonwood, AZ 86326

Dick Cepek
5302 Tweedy Blvd., Dept. ASG

Southgate, CA 90280
(213) 566-5171

Domestic
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Cave Junction, OR 97523
(503) 592-3615

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Northampton, MA 01061
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Durango, CO 83101
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Seattle, WA 98124

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Barrington, NJ 08007
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Gaithersburg, MD 20877
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Wilmet, WI 53192
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Homesteaders Warehouse
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Roseburg, OR 97490
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J.C. Whitney & Co.
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Chicago, IL 60680
(312) 431-6102

John J. Meshna Jr., Inc.
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E. Lynn, MA 01904
(617) 595-2275

Johnny's Speed & Chrome

6411 Beach Blvd., Dept. ASG
Buena Park, CA 90621-2896
(714) 521-4947

Ken Nolan, Inc.
Box C-19555, Dept. ASG
Irvine, CA 92713
(800) 972-9280

Kirkham's Outdoor Products
3125 South State St., Dept. ASG
Salt Lake City, UT 84115
(800) 453-7756

L.L. Baston Co.
Box 1995, Dept. ASG
El Dorado, AR 71730
(800) 643-1564

L.L. Bean, Inc.
Dept. ASG
Freeport, ME 04033
(207) 865-3111

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Sims, AR 71969
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Island Lake, IL 60042
(815) 455-3403

Matthews Police & Supply Co.
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Matthews, NC 28105

Mountain Camper
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Seymour, TN 37865
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Micro Information Concepts
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Dallas, TX 75221
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Military Supply Corp.
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Boulder, CO 80306
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Continued on page 75

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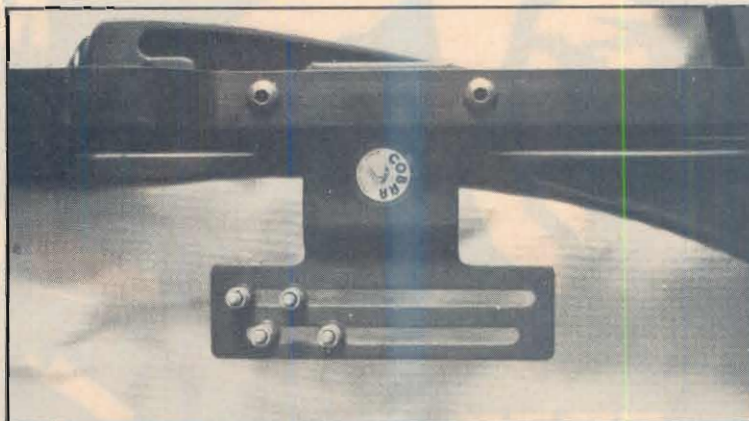
Speed, Silence:

THE ONEIDA EAGLE

This 'compound recurve' combines unconventional looks and red-hot performance . . .

By Payton Miller

Color photos by Durwood Hollis



ABOVE—The Eagle is drilled and tapped for accessories like this sight pin rack.

LEFT—Turning the adjustment bolts raises or lowers the draw weight. The Eagle has a 15-pound range.

NOWHERE IS the gulf between purism and practicality more evident than in the field of archery—or, more specifically, bowhunting. Longbow users in the 1920s and 1930s had a hard time dealing with the rise of the recurve bow. Recurve bowhunters *really* had a tough time dealing with the wheel-and-cable compound bows in the late 1960s and early 1970s. Purists said that bows with mechanical limbs looked *funny*. Terms like “ugly” and “contraption” were bandied about.

From traditional “stick” bow standards, compounds are pretty bizarre. There have been some fairly exotic variations on the compound bow theme. There’ve been 2-wheelers, 4-wheelers, and 6-wheelers. There’s split-limb designs, where the wheels are set into the limb tips, and there have been designs where the wheels are set in metal brackets called “hangers.”

In the late 1970s came the “dynabo,” a design which featured a mechanical lower limb with a crescent-shaped “rocker” assembly instead of wheels, and a fixed, conventionally-shaped recurve upper limb. The dynabo was difficult to get used to and was rather unforgiving (meaning the bow tended to quickly translate technique errors on the part of the shooter into misses).

The dynabo was undeniably ugly and difficult to master, but it *did* have one thing in spades—raw, blistering arrow speed.

A relatively recent variation in the quest for performance (read *speed*) is the “cam” bow. Power cams are simply elliptical (egg-shaped) “wheels” that generate a greater initial power stroke than the traditional round eccentric wheels.

Looks—It would appear that there is now an established, conventional notion of what a compound bow should look like. Why? Well, when a Syracuse, New York-based company called Oneida Labs, Inc. put a revolutionary “mechanical” bow on the market, its appearance shocked even the most sophisticated compound bow users.

The Oneida Eagle, designed by John I. Islas, is a textbook example on what can be accomplished performance-wise when an inventor is unconcerned with things such as traditional appearance.

The only thing that surprised us more than the bow's appearance, was the way it shot. First, let's attempt to describe what's unique about the way it works from the standpoint of shooters, because we're *not* design engineers.

The Eagle has two short recurve limbs attached to a pair of fiberglass working limbs. The working limbs are attached to a synchronizing system and oblong nylon cams mounted in pylons.

The cams are far closer to the center of the alloy riser than is the case with conventional compounds. During the draw, the out-board recurve limbs begin to flex, and push against the “working limbs” at a pair of pivot axles where they join. This starts the cams rotating by means of short yoke cables.

The main power cable—the signature feature of standard compound bows—is set in a groove along the riser, running under the grip plates. With conventional compounds, the cable runs along next to the bowstring—necessitating use of a bar-like device called a cable guard which separates cable and bowstring. With the Eagle, there's just the bowstring out there.

The fact that the cams are closer to the bow's center, and the absence of a cable guard, make the Eagle balance very well. The draw is quite smooth and felt a bit lighter than its 60 pounds. The let-off—the reduction percentage between the bow's draw weight and the amount of force required to *hold* it at full draw—is quite high. The company claims 45 percent. But, even more important, is that the draw is relatively *smooth*. When cam bows first made their appearance, shooters used to round wheel bows were dismayed at the powerful initial jerk that was necessary to start the cams “turning over.” The draw of the Eagle is easier than any other style of compound with anything remotely



LEFT & ABOVE—The Eagle is billed as a "compound recurve."

RIGHT—The Eagle's fine shooting qualities translated into some respectable 25-yard groups.



resembling an equivalent draw weight.

Variations—Oneida, incidentally, makes several versions of the Eagle. The H-500 is the top of the line item, with composite maple and glass outboard limbs. There's also a T-500 with a high-gloss finish, and a T-1000 competition tournament model.

Our test version was a newer model, and for hunting purposes, a more sensible one. It's called the H-250, and is designed specifically for hunting. It's less expensive than the H-500. It's also painted a flat, dull non-reflective black. It has something the other models don't have which are protective sleeves over the outboard limb tips.

Those recurve limb tips make string changing—a fairly complex process with some compounds—quite easy. Once the weight adjustment bolts on the front of the riser have been cranked all the way down, the Eagle can be restrung in the field like a conventional recurve. One difference, is that on the Eagle series, a small adjustment wheel on the end of the cam pylons must be loosened before tinkering with the main adjustment bolts.

Upon shooting the Eagle, we were impressed with three things: (1) The bow is very, very fast. Shooting at 60 pounds using Easton 2018 Gamegetters (which are a bit on the light side for that weight), it was difficult to even see the arrow the first 10 or 12 feet off the string. Oneida claims speeds of up to 240 fps with a 400-grain arrow/broadhead combo. We had no chronograph to clock the speed, but the Eagle was definitely quicker than any split-limb compound—round wheel or cam—that we'd ever seen. At 20 yards—using field points—we were getting a high percentage of "shoot throughs" on a 2½ foot thick hay bale.

(2) The Eagle is the quietest compound bow—of any type—we've never heard. It's tolerable without any type of string silencers, but the addition of rubber "cat whiskers" really toned things

down. Even with all the "bells and whistles"—bow quiver, sight pin rack, and stabilizer—there was no thunk, no clang, no buzz. The loudest sound was the hiss of the arrow taking off.

(3) There is a noticeable absence of recoil or torque on release. Many shooters employ a screw-in stabilizer to counter these things. We put one on, not because we felt the bow really needed it to improve shooting qualities, but because a stabilizer makes the bow easier to set down or lean against something—working sort of like a kickstand on a bicycle.

Performance—All in all, the Eagle has two things going for it that make it a superlative hunting bow. It's fast and quiet. Arrow speed is valuable in a hunting bow for the same reason that high velocity is a desirable attribute in a rifle. It makes slight errors in range estimation a bit less critical, and correct range estimation in bowhunting is far more essential than in rifle hunting. Misjudging a deer's distance by 100 yards with a .270 doesn't necessarily mean a miss. Misjudging a bowshot by 5 or 6 yards is one of the most common ways for bowhunters to come up empty. A quiet bow can be critical on long shots, where a spooky buck may "jump string," or jerk out of the way after hearing the release.

The Eagle is a high-performance item, and we feel it should be employed with sight pins to fully realize its capabilities. It's drilled and taped for all the accessories, and is available in two 15-pound weight ranges—35/50 and 50/65. Available draw lengths are, in inches, 27-28, 29-30, 30-31, and 32-33. Dick Burdick of Oneida, says that the company is working on a super-fast "overdraw" version (experimental models with sort, light arrows have been clocked at 300 fps), and a crossbow. For details and product information on this very progressive company, contact Oneida Labs, Inc., Dept. ASG, P.O. Box 366, Syracuse, NY 13201. ●

Lightweight, Nutritious:

JERKY

Drying meat has many advantages . . .

By Joyce Tintjer



LEFT—The first step in jerking is to slice the meat into thin strips using a sharp knife.

ABOVE—String the strips of meat onto a stick making sure the pieces do not touch one another to allow for adequate air circulation.

YOUR SMALL AIRCRAFT crashes in a remote area of British Columbia. No serious injuries, but who knows when, or if, a rescue party will find you, or how much time will elapse before you can find your way back to civilization.

Food becomes an immediate necessity. At least you have your pistol with you. If you can locate game, and get in close enough to bring it down with a handgun, before your ammunition runs out, just maybe, you won't have to resort to rigging traps for your food supply.

Toward the end of your second day, you spot an elk. Your aim is good—a clean head shot! Food for survival! You hurriedly dress out the meat and prepare your first meal in the wilds. But now you're in a dilemma. It's summer. Can you make full use of this bountiful meat supply before it spoils?

Preserving Meat—The odds of finding yourself in the foregoing scenario are slight. Yet most everyone has experienced a prolonged power outage that threatened to ruin a freezer full of meat. Would you know how to keep this meat from spoiling? Considering the tenuous condition of civilization these days, knowledge of how to preserve meat without a man made power source could become immensely important to you.

Meat will decay within a brief time span due to bacterial action unless some method of preservation is utilized. Freezing, heating and vacuum sealing, salting or pickling, freeze drying, irradiating, and refrigeration, for short term storage, are some of the commercial meat preservation methods. None of these are practical in an emergency situation. There is a way to preserve meat, using a minimum amount of equipment and applicable in almost any circumstance—the time proven art of “jerking.”

“Jerking” or “jerky” comes from the Peruvian word, Ch'arki, meaning simply, dried meat, and at its most basic level, that's all

all it is. Done properly, it will keep indefinitely.

The Incas, the American Indian, and frontiersmen used the jerking method of meat preservation as a life sustaining necessity. These were the survivalists of their day. Many skills, commonly practiced by them, are the identical ones we modern day survivalists must reclaim and learn for our own peace of mind and confidence.

Advantages—Reducing a fresh, or frozen, piece of meat into jerky, as an emergency measure, has many advantages. First of all, the only necessary equipment is a sharp knife. The rest can be improvised. Jerky keeps indefinitely, while retaining its original nutritive value. If you must carry it with you, dried meat will weigh only one fourth as much as fresh meat, with a corresponding reduction in volume.

Any meat can be used for jerky, but some varieties are more suitable than others. Lean meats are best, since a high fat content reduces the keeping time. Fat will go rancid and taint the jerky, eventually rendering it inedible. Large game meats, especially venison, make delicious jerky with good keeping qualities, because they tend to be very lean. The smaller game animals, such as squirrel, rabbit, pheasant, other game birds, and fish can also be dried. When using game meat, be sure to keep it clean and cold until you are ready to make it into jerky.

Preparation—When preparing your meat for jerking, cut off any fatty portions. If you are in a survival situation, don't discard this fat. It should be rendered down and kept for future use. Some fat is essential in your diet, especially in northern climates or during cold weather.

Slice the meat into thin strips, 1-inch wide by ¼-inch thick. Thread these strips onto string, wire, or dry canes or vines if no other material is available. Make sure none of the strips of meat



LEFT—Hang the slices of meat above the thin blue smoke of a hardwood fire. Use damp hardwood chips or shavings, never green leaves or wet rubbish.

ABOVE—The author holds a piece of fish jerky. The fish must always be thoroughly cooked to kill parasites.

BELOW—Slabs of meat are reduced by jerking into compact, lightweight, nutritious survival food.



is touching another, as air must be able to circulate around each piece for adequate drying. Hang these strips above the thin blue smoke of a hardwood fire until the outer surface is completely dry to the touch. Do not place them too close to the fire. Smoke alone is adequate for this stage of the jerking process. The smoke protects the meat from blowflies, by repelling them, while it is still moist. Once the surface of the meat is dry, they will do longer lay their eggs on it. After the initial drying you may continue to use the smoke for additional flavor, but it is not essential. The meat can now be hung in a dry atmosphere away from direct sunlight, until completely dry. This may take anywhere from one hour to a whole day, depending on the humidity in the air. The jerky is ready if it snaps when bent.

Whatever you do, never leave your jerky-in-making unattended, unless you can dog- and cat-proof the area, or if in the wilds, keep it safe from other would-be predators. One time I had to answer the call of nature and when I returned to my fire, one whole string of jerky was missing, and Marrow, my cat, was licking his whiskers with a satisfied look on his face.

Wood—When building your fire use dry hardwood, allow it to burn down to a bed of red-hot coals, then add damp chips or shavings. Hickory, apple, or cherry chips provide the best flavor in your jerky, but any hardwood will do in a pinch.

Never use pine or other softwoods for your fire, as they are too resinous, and the smoky fumes will coat your jerky and make it inedible. Don't try to build a "smoky" fire by adding green leaves or wet rubbish. The moisture contains essential oils which will evaporate from the leaves and condense on the meat, thereby ruining it.

If you are making jerky in other than a survival scenario, never use a chemical fire starter to build your fire, as its odor will linger in the smoke and ruin the taste of the meat.

To make fish jerky, it is essential to do it quickly. If it is not a hot day, smoke the fish thoroughly. Some varieties of fish are too flaky to cut into strips and hang over a fire. In this case heat flat smooth stones, place in the smoke, and spread the slices of fish on them. Turn the fish pieces over often for thorough drying. Fish jerky is especially tasty if kept in the smoke until entirely dry.

Storage—Store the finished jerky in a container which will allow for some air circulation, such as an open weave bag. The Indians used leather pouches, which kept out insects but let in air. Never store jerky in plastic or cellophane, as it will "sweat" and eventually mildew.

Venison or beef jerky is delicious and quite safe to eat without any further cooking. But for diversity in your diet, use it in stews or for making broth. It is best to soak the jerky several hours before using in stew.

A word of caution: Always thoroughly cook the jerky made from rabbit meat or freshwater fish, as this flesh is often infested with parasites. Rabbit meat may contain the parasitic worm, hydatid, which if ingested can be fatal. Drying alone does not destroy these parasites.

If you are making jerky, as a practice run for survival training, after the initial smoking, you may finish the drying in your oven at a very low temperature. If you have a gas range, the pilot light should give adequate heat.

Once you've tasted your first batch of jerky, it will become more than just a survival food. Jerky makes a great snack to keep around the house. Take it camping or backpacking. It contains a lot of energy in a small package.

You may never be stranded in a jungle or the wilds of British Columbia, but practical skills will come in handy wherever you are, and build your confidence to survive. ●

Toxic Fume Protection:

GAS MASKS

What if an accident or act of terrorism created a poisonous cloud in your neck of the woods? . . .

By Duncan Long



Some gas masks commonly available are from left, M7, M17, M25, and Israeli Civilian/Military.

THERE ARE A LOT of poisonous fumes just waiting to get you. While some would normally be confined to the battlefield, an accidental leak of old chemical weapons could create a deadly situation. Too, dangerous chemicals may be practically sitting next door to you or moving along close by in a truck or train. Right now a leak could be creating a toxic cloud that will slowly drift into your area. With accidental fires and even terrorism thrown in, it isn't too far fetched to believe that most anyone could be exposed to poisonous gas.

And accidents *do* happen. Remember the Union Carbide plant in India? What would *you* do if an accident or act of terrorism created a poisonous cloud in your neck of the woods?

There are several simple steps you can take to greatly improve your survival chances. The first thing to do is to become aware of what the dangers in *your area* are so you don't spin your wheels getting ready for something that probably won't occur. Take a quick survey of the chemical industries, chemical dumps, military installations, major highways, and railroads near you. Knowing what the specific dangers in your area are will help you make preparations wisely. Though sometimes hard to carry out, this research is



The M25 tanker mask has a wider, flexible vision plate in it and is quite comfortable to wear. The long hose down the front connects to a large canister filter.

important if you are to tailor your preparations properly.

Avoidance—Once you know the dangers, you should remember that your first



The Smoke Emergency Escape Mask has a filter sealed in the area over the wearer's mouth. The filter absorbs poisonous chemicals often found in building fires, but not carbon monoxide.

and best line of defense is fleeing or avoiding toxic materials. While you may be able to survive the worst if you have a gas mask and protective suit, if the danger is confined to a small area—which is almost always the case whether you're facing a military chemical weapon or an industrial accident—a better route is to flee. Sometimes, fleeing may be your *only* line of defense; this is especially true with persistent contaminants which remain dangerous for days, weeks, or, in the case of nuclear wastes, even decades or centuries.

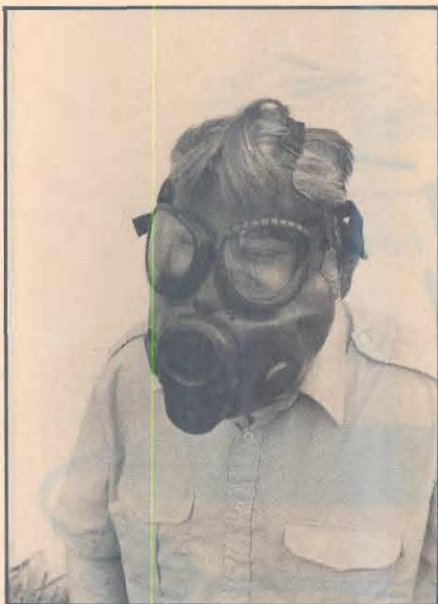
On the other hand, fleeing may not always be an option. Suppose you don't have a warning and a toxic cloud engulfs your area. Since you don't know how wide it is, or which way it's traveling, charging out into it and trying to get away could be suicidal. You might actually decrease your survival chances by moving in the same direction the cloud does!

Protection—This is when you need some sort of physical protection. The most important and easiest to use piece of protective gear is the gas mask.

Before we go any farther, there's one mistaken notion you should get out of your

head: don't look at gas masks as some kind of skin diving equipment that allows you to "swim" through toxic fumes, oblivious to harm. While ocean water is relatively harmless (provided you're not breathing it), toxic chemicals in minute amounts can kill you. Added to this is the fact that many chemicals can only be detected when they start to attack you. Unlike water which is easy to see, toxic materials may be all but invisible.

But if you can not avoid a hazardous chemical, then a good mask can be your key to survival since most dangerous



The M17 mask is lightweight and not apt to get hung up in brush or obstacles.

chemical fumes, as well as chemical weapons, are most lethal if they enter the body through the mouth and nose. (Many of the newer warfare agents can enter and attack the body through any cuts, open sores, eyes, genital openings, excretory openings, or even through the skin but toxic effects occur with prolonged exposure and even then the nose and mouth are the main points where the chemicals enter the body.) If nothing else, a good gas mask will give you an extra bit of time to move to a safe area.

Filters—The heart of a gas mask is its filter (or filters). Most filters work in two ways. A pre-filter takes out large particles in the air and chemicals in the filter remove dangerous fumes and gases out of the air. Filter chemicals have a finite life; there will be a point at which the chemicals in the mask become saturated with toxic agents. When this happens the filter will ideally limit the air coming through it, which may cause the seal between the mask and the user's face to break creating a leak, or poisonous gas may start to leak through the filter itself.

The pre-filter will eventually clog up as it becomes full of "junk" from the air; in a

dusty environment, the pre-filter can clog up the filter before the chemicals absorb as much toxic material as they might otherwise. Users should bear both of these points in mind; filters have a finite protection time in a poisonous environment and the length of time they offer protection is dependent on the amount of toxic material entering the filter.

A user can prolong the life of the pre-filter by avoiding breathing in areas where he can see dust or other contaminants in the air. Users can also sometimes prolong the time they can wear a mask by improvising a pre-filter which can be stripped off when it gets clogged with dust in a dirty environment (a few commercial filters have this ability as well).

A mistake made by many people is the assumption that a mask will remove any harmful gas from the air going through it. This isn't always the case. Most military masks are designed to remove chemicals which would be most often used in combat and will therefore absorb most but not all chemicals that might result from an industrial accident. The most glaring shortcoming with the military mask is that ammonia, a pretty common industrial-spill chemical, can get through it.

Another problem gas which no mask, industrial or military, will filter out is carbon monoxide. This gas is produced during fires and is too similar to oxygen for a filter to remove. Yet another danger which masks offer no protection against is when a toxic gas is thick and heavy enough to displace air. In such a case, it's possible that there won't be enough air to breathe in a low-lying area like a basement. Displacement need only reduce the amount of oxygen in the air by a few percentage points to make it quite hard to breathe.

If ammonia is a possible poison in your area, then you should consider the purchase of an industrial mask that has a number of filters available for it which are designed for the pollutant or gas you're concerned about. This will give you the best protection *provided* you have the right filters in place. The North Full-Face respirator is probably the best commercial mask for this purpose. North even manufactures "dual element" filters so that you can tackle nearly twice as many gases with one set of filters. (Wilson also makes good industrial masks. These don't have quite the selection of filters offered by North, however.)

The North Full-Face mask (number N-03-553) costs \$135. Ideally, you should also purchase a nose cup assembly for it. The nose cup redirects the air coming into the mask across the eye piece of the mask so that it is less likely to fog up. Though the nose cup assembly costs another \$35, it's usually worth the money. Another addition to the mask is the pre-filter which goes over the filter (these cost \$6 to \$8 per box of 10).

For protection against ammonia, the North mask needs the ammonia filter

(7500-4) which costs \$22 for a package of 3 pairs. If you wish to add protection against a wide range of other chemicals, dual filters for the North Full-Face mask cost \$15 to \$16 per pair (the mask needs two). The most useful for disasters is the 7500-83 cartridge which protects from organic vapors, pesticides (and a number of chemical weapons), chlorine, hydrochloric acid fumes, sulfur dioxide, radionuclides, metal fumes, asbestos dust, and cold PCB. That covers a lot of chemical accidents as well as many potential terrorist actions. The North mask and filters are available from Direct Safety Company, Dept. ASG, P.O. Box 8018, Phoenix, AZ 85066.

(I've never tried it out, but it would probably be quite easy for a do-it-yourselfer to create an ammonia filter for a military gas mask by replacing the chemicals inside an old standard filter with silica gel which will absorb ammonia in the air coming through it.)

Breathing Equipment—If you need protection from a wide range of chemicals and/or need to move through areas where gas may have displaced oxygen or where carbon monoxide is present, then you need to consider breathing equipment like that used by firemen, miners, etc. Unfortunately, this type of gear is far from cheap; prices run just under \$1,000 for a complete outfit of air bottle and mask. But, if you face a number of different dangerous gases and have the money, the breathing outfit gives maximum protection against various types of poisonous gases, fumes, and poisonous particles. One good backpack breather is the Globe Guardsman SCBA which is also available from the Direct Safety Company.

I suspect that a "poor man's" breathing backpack with a scuba outfit and a little improvisation on the part of the user would also be worth considering and might even give you a new survival capability when used conventionally.

Another possibility would be the portable emergency bottled oxygen kits that are designed to supply oxygen to heart attack victims. These supply the user with a minimum of 15 minutes of oxygen. Provided you coupled such a unit with some type of mask (to protect your eyes), and didn't over exert yourself (thereby using precious oxygen), it could buy you enough time to drive a car out of a contaminated area. Direct Safety Company sells the emergency oxygen kit (which you would have to adapt to a mask) for \$63.

Respirator—Another industrial "mask" which might be of use is the respirator or half-face mask. The bad part of these is that they give no eye protection; this is an important consideration since many hazardous chemicals are also quite irritating to the eyes. Therefore, care must be taken in selecting these.

The North company manufactures a

Continued on page 62

State of the Art:

SURVIVAL KNIVES

New cutting tools from several well known cutlery firms . . .

By Durwood Hollis



ABOVE—The Explorer Brewer knife from Gutmann Cutlery is made in Spain and carries a variety of survival items.

ABOVE LEFT—Buck Knives' new BuckMaster (Model 184) is 12½ inches overall with a 7½-inch heavy duty blade. The knife comes in an impact-resistant "GripTite" sheath with emergency sharpener.

LEFT—The Kershaw survival knife (Model 1005) weighs 24½ ounces and is 12¾ inches overall with a 6-inch blade. It comes with a Cordura sheath carrying other survival gear.

TO ENDURE under arduous conditions is an experience that few are well prepared to attempt. Most survival situations occur without warning and often at the worst possible time. Because outdoor activities place us at the whim of nature, this is the setting where most survival scenarios happen.

A simple day hike in the woods, an overnight hunting trip or a short flight over remote territory can easily turn into a life or death situation that can demand all of the resources that can be mustered to just survive.

Basic human needs, food, clothing, shelter and self-defense, are of the utmost

importance in a hostile environment. Without some mechanism to meet these critical needs, the time on our life clocks will begin to run out. The speed at which those moments slip away will be dependent on choices made long before we were faced with an emergent need.

Central to all human survival has been some type of cutting tool. Primitive man manufactured out of stone, antler or bone the knives, scrapers and spear points essential to his particular culture. From the beginnings of man's emergence as a distinct species, edged cutting tools were of paramount importance to his continued existence.

Survival Knives—Realizing the primary importance of knives in sustaining life under demanding conditions, several well known cutlery firms have recently brought forth what might be termed state-of-the-art survival knives. More than just cutting instruments, this new generation of survival blades have been designed to be multi-functional in a wide range of situational demands.

Jungle King—Should you have to survive solely dependent on your own resources, then a survival system like the Aitor "Jungle King II" survival knife could make a real difference. The stainless steel,

5 1/2-inch blade is mated solidly to a non-slip grip hollow handle. Hardened to 56/57 on the Rockwell "C" scale, this blade features a saw engineered into the back edge of the blade. The hollow handle holds bandages, scalpel, fishing gear, pencil, sewing kit, pill box and other goodies.

The molded polyamide olive green sheath has fold-out sling shot forks, that when combined with the latex tubing that is carried within the sheath, can form an effective food gathering device. There are several other items contained within the sheath such as a sharpening stone, flint, bottle opener, screw driver, signal mirror, shackle wrench, harpoon head and line.

In all, the Jungle King II survival knife/sheath combination can boast of over 20 different survival functions. This is quite a complete system, lightweight and designed to carry on your belt. If serious survival is your forte, then this product deserves close examination.

Explorer—Designed by survival expert, Dr. Charles Brewer, the Explorer "Brewer" survival knife is survival cutlery at its finest. Made in Spain for Gutmann Cutlery, this knife and sheath display the most advanced engineering and high tech craftsmanship available. Two different sizes and types of blade steels are available, a 5 1/2-inch bright 440C stainless steel model and a 6 1/2-inch matte black chrome steel design. Either blade type has a non-clog saw on the back edge of the blade. International land/air survival signals and an accurate clinometer are also engraved on the blade for easy reference.

A slot has been cut into the blade that mates with a mechanical cutting unit on the sheath to form an effective wire cutter. The hollow handle of the Brewer knife is sealed by means of a threaded cap that has been fitted with a rubber gasket to form a waterproof seal.

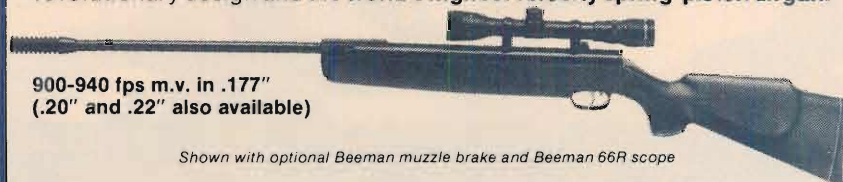
Inside of the cap is a shock-proof compass and essential survival items including matches, scalpel, fire starter, water purification tablets, fishing gear and needle and thread all sealed in a watertight plastic capsule. The uses that this survival knife can be put to range from spear to wire cutter, fishing kit to fire starter. Dr. Brewer has put his 25 years of experience as an explorer and adventurer in the jungles of South America into a survival cutting tool that is the trusted companion of knowledgeable outdoorsmen the world over.

Continued on page 60

Beeman R1 Super Magnum Adult Air Rifle

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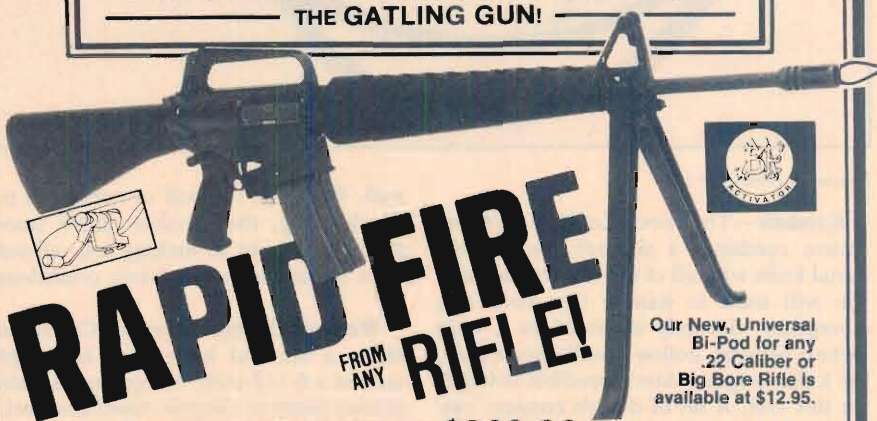
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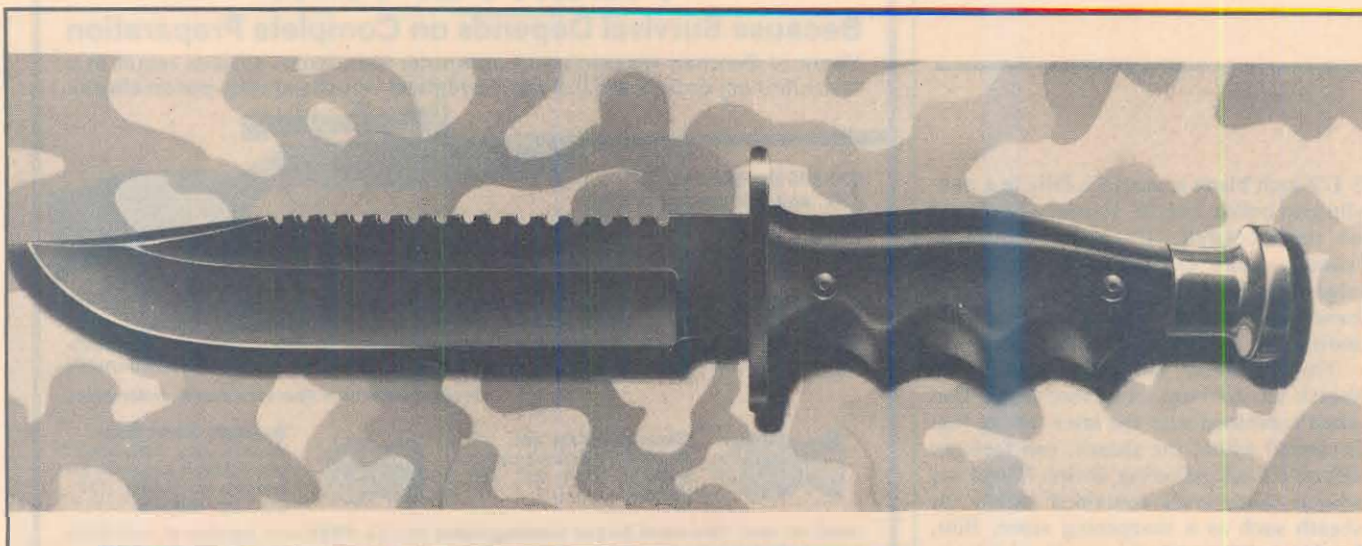
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SURVIVAL KNIVES



ABOVE—Western Cutlery's knife has a 6½-inch, epoxy-coated, saber-ground blade of chrome-vanadium steel.

LEFT—BenchMark's "SOS" knife incorporates a unique folding blade sheath.

Continued from page 59

Kershaw—The new Kershaw survival system combines a six-inch, multi-functional knife with all of the survival features you will need to handle the more dire emergency. Securely mounted in a solid lockup between hollow handle and blade, the knife tang provides incredible strength for this tool. A set of double crosscut saw teeth are cut into the blade back for use on wood, bone and light metal. When not in use, the saw teeth are covered with a protective plastic strip. The hollow handle incorporates a cushioned, non-slip, finger grooved, molded covering for positive gripping. The stainless steel buttcap is highly polished for use as a signal mirror and seals the hollow handle cavity for waterproof storage. Contained within the handle are fishing hooks, line, needles, thread, a safety pin, matches and surgical tubing.

The Cordura nylon sheath contains several pockets that hold a complete set of waterproof survival instruction cards, a full-size compass, bandage strips, and reflective marker strips to indicate your

trail. Worn on the belt or converted to a shoulder rig, the Kershaw Knife (model 1005), can assist in making you self-sufficient under the most adverse conditions.

Western Cutlery—Western Cutlery also offers a survival knife that is designed around a 6 1/2-inch, epoxy-coated, saber-ground blade of chrome-vanadium steel. A saw blade on the back edge of the blade provides additional functioning to a razor sharp blade.

The full-tang, reinforced handle is grooved for a better grip. Nearly indestructible, the knife pommel is "nail driving" tough. The knife comes with a unique zippered sheath of Cordura nylon. A special hard plastic insert fits inside the sheath and protects the fabric from the blade edge. A pouch on the sheath contains a Silva compass, fishing hooks, line, sinkers, a single mirror, matches, needles and thread. Weighing less than one pound, the Western "Survival System" is well thought out and "hell for tough."

BuckMaster—Buck Knives' new "Buck-

Master" (Model 184) knife has already made a name for itself among survivalists, military personnel and outdoor folks. Designed in cooperation with the U.S. Navy, this rugged knife has a 7 1/2-inch stainless steel blade. Serrations on the blade back and clip point provide sawing capability for wood, metal and rope.

Unique emergency anchors can be detached from the blade guard for securing gear at selected locations. The hollow handle contains an accurate compass and provides watertight storage for survival essentials.

The rigid-mold sheath is impact resistant and provides "GripTite" carrying capacity for the knife. Accessory pouches can be attached to the sheath to hold other emergency gear and a mini-first aid kit.

This massive knife is one of the most impressive products of its type ever conceived. Self-defense or self-reliance, the "BuckMaster" knife has it all together.

BenchMark—BenchMark Knives produces the "Serious Outdoor Sportsman's" knife, "SOS" for short. Weighing just

4 1/4 ounces and .156-inch thick, this tough little survival knife seems to store anywhere without a trace. The specially designed stainless steel blade cover can be folded out of the way to form the knife handle.

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The drop point blade design is highly efficient at field dressing animals, camp chores or general purpose assignments. Four graduated hexholes are cut into the knife handle so that it may be used as an emergency wrench.

Built-in lanyard hole with wrist thong is great loss-proof insurance. The SOS knife stores as easily in a survival cache as it does in a hunting pack or duffle bag. Slim design, quality craftsmanship and user friendly features, this product is guaranteed not to ever be left at home.

Primary Tool—Man may have come a long way from stone tools and skin clothing, but even with our technological growth, the dependence on the knife as a primary tool in trying circumstances has not lessened. New cutlery products, from the forward-thinking design labs of America's best knife manufacturers, are the latest in a never ending stream of knife development. ●

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-GAS MASKS-

Continued from page 57

respirator that accepts the filters designed for their full-face mask. Another company which makes quality *disposable* respirators is 3M. These half-face masks are little more than a filter with straps to hold it over your mouth and nose. The great plus is the low price of each mask: \$10 to \$13 each depending on the protection they offer. The 3M company has masks to protect against organic vapors (No. N-03-174—\$10 each), acid gases (No. N-03-110—\$10 each), ammonia (No. N-03-110—\$13), and formaldehyde (No. N-03-123—\$13). They also offer a pre-filter which will keep large particles from clogging the gas element. (These masks are available from 3M or from Direct Safety.)

Smoke—Very dangerous poisonous fumes are created when a large building burns. Often these fumes cause more deaths and injuries than the fire itself. Therefore, those living in large apartments or who find themselves in hotels a lot should consider purchasing the Smoke Emergency Escape Mask. This is a hood/mask with a flexible, clear plastic lens in it. The filter is sealed in the area over the wearer's mouth and absorbs two poisonous chemicals often found in building fires: hydrogen chloride and hydrogen cyanide. Like other masks, it does *not* absorb carbon monoxide but will give the wearer an edge in a house/building fire since he can breathe. If a wearer remembered to stay close to the floor as he moved down the hall and out of a burning building, he would have a greatly improved chance of escaping and perhaps even leading others without masks out of danger. The mask is available from a number of sources including SI Equipment, Ltd., Dept. ASG, 2322 Artesia Blvd., Redondo Beach, CA 90278, for \$30 and is small enough to fit into a suitcase without taking up much extra room.

Surplus—There are a number of masks available on the military surplus market which are very good bargains. Not all of them are as good a buy as others, however; some have filters that are hard to find replacements for. Since the heart of the mask is the filter, such masks are little more than collector's items. And don't trust the filters that are in a mask when you purchase it. Chances are good it has absorbed enough material from the air to deactivate it, and even if it is good it's probably only a training filter designed for use with tear gas (only the Soviets use real nerve gas in training). These considerations rule out the emergency use of British civil defense masks, WWII-vintage masks, etc.

Continued on page 64

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GAS MASKS

Continued from page 62

The US M9 mask (with a cheek filter on the left side of the mask) is marginal since the filters made for it are getting quite out of date. If you could find good filters and if you do not wear glasses, the M9 is good. Otherwise, you'd be better off forgetting it.

One good U.S. military mask on the surplus market is the M17 mask. Provided you didn't have to change the filter in a hurry (which probably won't be necessary during a chemical emergency), it's well designed and there are large supplies of filters available for it. A later model of the mask, the M17A1, is identical to the M17 except that the M17A1 has a drinking tube in it and a resuscitation tube connector in it. Since the resuscitation tube is a doubtful asset that often leaks, the M17 is probably the better buy. The U.S. military is replacing the M17 and M17A1 with a new mask, so there'll probably be a lot of M17/M17A1 masks on the surplus market as well as good filters for them for the next few years and commercial ones are being made for police/civilian use. Down the line though, there may be an "M17 crunch" when it's hard to buy parts and filters for the masks. If you decide to go with the M17, get spare parts and filters when you get your mask.

While the filters in an M17 are lightweight and not apt to get "hung-up" in brush or on obstacles, they can't be replaced quickly or easily in the field. On the other hand, there are military eyeglass inserts for them so that those people who wear glasses can modify the mask to their correction. That may be an important consideration for many users. A couple of companies that offer good prices on the M17 masks are Parellex, Dept. ASG, 1090 Fargo, Elk Grove Village, IL 60007; Core Resource, Dept. ASG, P.O. Box 4526, Mountain View, CA 94040 (which also has a number of filters and spare parts for the mask); and Sierra Supply, Dept. ASG, P.O. Box 1390, Durango, CO 81301. Prices will vary with the supplies of masks available, but currently, the price of a good M17 mask is in the under \$70 range.

Most M17 masks come with training filters that only protect from tear gas (these black-ringed filters are coded "M13: 4240-00-678-8474" and "M13A1: 4240-00-934-7854."). M17 filters needed for protection from poisonous gases are the yellow- or green-ringed filters. Both are designed to give protection from a number of chemicals but the green-ringed filters are a bit better and will be newer than the gold filters (the color designation is on the neck of the filter). The yellow filters are coded: "M13A1: 4240-00-152-1607" and green filters are coded as "M13A2: 4240-00-165-5026." New filters are currently available from Sierra Supply and Core Resources for around \$13 for the gold-ringed M13A1 and

\$10 for the green-ringed M13A2 filter.

When the new U.S. military masks which are to replace the M17 work their way to the surplus market, it would probably be wise to switch over to those newer masks. They have a wider field of view, a larger filter, and may well protect against some chemicals that other masks don't (the U.S. military is pretty tight-lipped about what the masks offer protection against). Until then, there are some other masks that, for many users, are probably better buys than the M17s.

Tanker Mask—One of these is the U.S. military's M-25 tanker's mask. This has a wider, flexible vision plate in it and is quite comfortable to wear. The only shortcoming (which many won't find to be a drawback) is that it has a long hose down its front which connects to a large filter (that's carried in the gas mask bag or on a strap of its own). This makes it a little awkward but makes up for any problems with the lighter weight you have to carry on your head, a larger filter than most in-mask filters, and a better field of vision. This mask is available from SI Equipment, Ltd., for \$40 and spare filters for it are available for \$10. (Unlike the M17, the mask does not have a voice-mitter: it's hard to talk to someone while wearing it; it does have a built-in microphone that plugs into the tank intercom/radio. Best bet is to cut the microphone wire off so it doesn't

won't give you much protection if it doesn't fit. Currently, masks come in three sizes. You should try the mask on to check it for fit but you can get into the ballpark by using your hat size (small, medium, or large) for a rough idea of what size of mask you need. The mask size is embossed on the front of all modern masks on the right temple of the mask; it will be "S" (Small), "M" (Medium), or "L" (Large). (Rarely, a "U" will be found which stands for "Universal" and is the same as medium.)

The proper way to put a mask on is:

- 1) Open the mask, its outside pointing away from you, with each of your thumbs under each of the lower head straps.
- 2) Place your chin in the chin of the inside of the mask.
- 3) Pull the mask up over your face while your thumbs pull the straps up and over your head.

Parts—If you can purchase spare parts for your mask, the really critical parts (next to the filters) are the valves that replace the exhaust valve and the inlet valve on either side of the upper nose cup. These valves should lie flat and not leak. If the inlet valve leaks, you can get by provided you don't try to change a filter while you're wearing the mask. If the outlet valve leaks, your mask won't give you much protection even with a good filter. Valves in the nose piece can be covered with tape when they start to leak so that the eye piece

'Cold weather poses a risk . . .'

get tangled up.)

Israeli Mask—Probably the current surplus "bargain basement" mask is the Israeli Civilian/Military mask. Though these masks look as crude as the hills, in fact they are fairly new in design. Most are made in West Germany and are designed for defense against modern chemical weapons (thanks to the fact that the Israelis discovered that Arab tanks, captured in the Six-Day War, were equipped for chemical warfare). These masks have a lightweight filter that is easily replaced by just screwing it in or out of the nose of the mask.

Though the field of vision isn't quite as wide as that of some other masks and the mask doesn't have a voice-mitter, SI is currently offering it for just \$20 with spare filters costing \$9 each. Thus, for only \$30, you can protect yourself from most (if not all) chemical weapons and a large range of industrial spills. In fact, for less than it costs to purchase some of the commercial masks, you can protect a family of four, have a number of spare filters for the masks, and take everyone out to McDonalds to boot.

Fit—Regardless of what mask you get, it

is less apt to fog up (though this isn't as good as replacing the valves). Since these valves are generally the first thing to "go" in a mask, buying a spare mask to cannibalize for parts doesn't usually work too well.

When you need a mask, you need it in a hurry. The only way to get so that you can get a mask on quickly is to practice. And practice. And practice. When you're practicing, be sure to hold your breath while putting the mask on and then exhale every bit of air that you can push out of your lungs once the mask is on. This long puff of air from your lungs will push contaminated air out of your mask. (While you're practicing, try running and doing a few odds and ends like using a rifle, sitting in your car, etc., to see how handicapped you'll be in the mask. Discovering you can't use a firearm can be a disaster in the middle of a gun battle!)

If you find the eye pieces of the mask fogging up, you should purchase some antifogging chemicals to put over the lens of the mask. This material, sold commercially as "FogsAf," can be purchased in a pump spray bottle from Brigade Quartermasters, Ltd., Dept. ASG, 266 Roswell St., Marietta, GA 30060, for \$3.

A mask can be cleaned with warm,

soapy water. Just be sure *not* to get the filters wet. This will ruin a filter.

When is a mask worn out? *Not* when you see whitish materials on it. The rubber material that masks are made from often gives off a whitish material which may form a film on the mask. This protects the rubber. Don't remove the white material, the mask will last longer. The rubber material is worthless when you can pull on it lightly and see small cracks in it. When this happens, the mask can fail you. Get a new one.

Filters go bad with time if exposed to the air or heat. Be sure the filter you get is designed for whatever you wish to be protected from and then keep it sealed in an airtight container (preferably the one it is sold in) in a cool place. Since filters slowly pick up gases that are harmless in the air as well as poisonous chemicals, if you leave a mask exposed to the air even without donning the mask and breathing through it, the filter will be shot after a few month's exposure. Store the filters in airtight containers or be sure they are sealed up. With masks with hard-to-replace filters, especially like the M17 mask, you're better off storing them with filters in place while the whole mask is kept in an airtight package. Plastic bags are ideal for storage to keep the filters from slowly degrading themselves. Just be careful that the humidity inside the bag doesn't cause moisture to collect and get into the filter; remember, a wet filter doesn't work properly.

Again, keep the filter dry. Water can make the mask so that poisonous gases may get through it and will also slow down the rate at which air can get through the filter when you're breathing. For the same reason, rain can be a disaster so don't go out without sheltering your head when there are deadly chemicals and rain.

Cold weather poses a risk in that the moisture from your breath can form ice in the outlet valve of a mask and keep it open so that air comes back into the mask through it. This can generally be prevented by getting a cold weather kit for the mask or by improvising in the form of a sock-like piece of cloth which can be placed over the outlet valve. This keeps heated air around the valve for a fraction of a second longer and keeps the valve warm enough to keep from freezing up.

Replacing Filters—When do you replace filters? We know one: when it gets wet. Other conditions which dictate filter replacement include when the filter or the connector neck of the filter has become damaged; if the filter becomes hard to breath through; if you can smell or taste the chemical; or if the filter has been excessively used in a chemically-contaminated area.

To replace a filter, you need to get an old training manual for information on replacing the M17 mask filters (they're hard to change). With other masks, the

procedure is just a matter of unscrewing the old filter or unfastening it from a hose and fastening in the new one. Remember that old filters will contain dangerous chemicals; be careful when holding them. And get rid of used filters where they won't pose a threat to your safety.

Glasses—As mentioned before, the M17 has eyeglass inserts which allow prescription lenses to be placed in the mask. If you wear glasses, you're out of luck with many gas masks. One option which may work with some masks is to get a pair of the new black nylon sports glasses that are designed to be used with scuba masks (these frames are available from many optical dispensers or may be ordered from Brigade Quartermasters and lenses made for them at your optician's).

The frame has a rubbery plastic strap that is thin enough to allow a gas mask to seal around them. These are a tight fit in many masks so you'd do well to get the frames, take them home and try them out before getting the lenses made to go into them. They come in several sizes so if the size that's normally the size for your face doesn't fit, ask for a smaller size. Your vision will be pretty restricted in the mask anyway and you'll not notice the difference in the smaller size's field of vision. (It is also possible to whittle off a little of the outside corner of these glasses when you're lacking just a little of having a small enough set of frames.) These frames currently cost around \$25 without the lenses.

Get some sort of carrying bag for your mask. It needn't look great; you'll not be interested in style when you're needing to carry a gas mask. All you need is something to protect the mask. If you'll be operating in wet conditions or need to keep a filter sealed up in the mask, use a plastic bag or two to keep it protected from the air (remember that you'll need to be able to get it out and on the mask in a hurry, too).

A hood for the mask, chemical suits, and gloves would greatly improve the protection you'd have. But these cost money and take time to get on in an emergency. They're nice to have but usually won't be necessary if you can travel quickly out of a contaminated area. In such a case, a good accessible mask is probably all you need to save your life.

A good mask can make you a survivor rather than an accident or war statistic. That's worth a little extra effort, isn't it? ●

LIST OF DISTRIBUTORS OF GAS MASKS AND ACCESSORIES

Brigade Quartermasters, Ltd., Dept. ASG,
266 Roswell St., Marietta, GA 30060
Core Resource, Dept. ASG, P.O. Box 4526,
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



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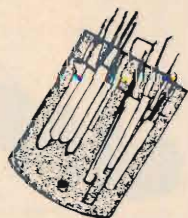
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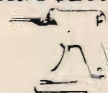
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MAIL CALL

Stun Gun Hassle

Since writing you (Mail Call, August 1985) on the possibility of disguising a Stun Gun as a portable radio, an individual in Beavercreek, Ohio, was arrested for carrying a Stun Gun as a concealed weapon. He had added an antenna to make it look like a portable CB unit. I suspect the police officials were looking for someone carrying a Stun Gun, disguised or not, to test state laws on whether or not the Stun Gun is a "weapon." Thus, until this issue is clarified, and it will vary from state to state, I would not recommend disguising a Stun Gun nor carrying it in a glove box, under a car seat, etc.

Ken Scharabok
Dayton, Ohio

It would be best to check with your local and state authorities on the laws governing use and possession of the Stun Gun before purchasing or carrying one. Thanks for your comments, Ken.

Improvement

I just want to write and tell you to keep up the excellent work. I have gotten your magazine since late 1981 and have seen incredible improvement. I am pleased to see the emphasis change from mostly guns. I used to get *Survive* magazine but no more. They have become a gun magazine while you emphasize practical articles on all aspects of survival. Please keep up the articles on nuclear survival. Could you please do an article on gas masks? Which ones should I buy? Filters? Operation?

Rob Steinmetz
Trenton, New Jersey

Thanks for your kind words, Rob. We're continually trying to improve our product. An article on gas masks is in this issue.

Computer Literate

Just finished reading your article about computers ("Modem" August 1985). May I say it's the first piece I've read about computers that wasn't gobbledygook. As a non-computer person, I found it easy reading and it will perhaps provoke me to inquire a little further about the possibility of becoming computer literate. Thanks for readable information about this field.

Bill Wildt
Franklin Park, Illinois

We appreciate your comments, Bill. Computers have a part to play in survival and we want our readers to know about them.

Computer Bulletin Boards

I just received the August 1985 issue of *ASG* and was very satisfied. I enjoyed the article on the AR-15 sniper, but I have a few comments on the article on computer modems: the article was excellent; the BBSs in the article weren't. I started with the Bread Board. I failed to make any contact with my modem. I set at the wrong baud rate. So then I tried the IBM PC Computer Center and was answered by a man, not a computer. At this point, worried about running up my long distance phone bill, I called up the Manhattan Messenger: no answer. Next I tried the Atlanta Board: the number was changed. Tried the new number: no answer. Back to the Bread Board. May I quote you? The article said just follow the instructions and go to the survival sub-board. Only one problem: getting on line. I was met with "Password:" How do I know what the password is? Please tell me. Despite this confusion, your magazine is the best by far. Is there any chance of you doing an article on the Beretta AR70? What happened to the Mail Call section of *ASG*?

*We'll consider your request for a review of the AR70. Due to an editing error, we did not list the page numbers of the Mail Call section in the table of contents of the August issue. It's on pages 72 and 73. In response to your criticism of the modem article, the author, James Harris, replies: I must apologize to those readers who tried to get on the Bread Board. Unfortunately, the sysop of the board changed the format of the operation from a public to a private board. This occurred at about the time the August issue of *ASG* hit the newsstands. Even I can't get on the board any longer. This is one frustrating problem with BBS operations, including those that I mentioned in the article. Too often these boards are operated by companies or individuals who start a BBS as a fling and then become bored with it or don't want the added expense of a BBS operation. I have decided that I will open my own BBS strictly for survivalists. I am now in the process of obtaining new equipment and software for the board and will send along all necessary information to the readers of *ASG*. The use of computers by survivalists seems to be catching on as I have received many letters since the article was printed. A BBS devoted strictly to survival and related topics is overdue!*

Jim Harris
1408 East Ave.
Berwyn, IL 60402 ●

- FRESHWATER FORAGING

Continued from page 45

quito, Gray and White Wolf.

Wet flies can be fished in a variety of ways to imitate anything from small minnows to drowned insects. Survival wet fly selections should include Blak Gnat, Light Cahil, Hare's Ear, March Brown, Parmachene Belle, White Miller. Wet flies excel when presented on floating or sinking fly line in situations where line control on the water is very important. As in most stream fishing, full sinking lines can cause problems. On the other hand, a floating line has obvious limitations for subsurface fishing. With combination floating and sinking lines, the high density front section sinks the fly while the floating rear section allows you to "mend" the line (to throw additional line out in "S" shapes in an attempt to induce a natural drag-free drift), as well as follow the motion of the line on the surface to watch for the indications of a strike (the twitches or pauses for a moment).

Nymphs are effective trout enticers. It is commonly known that 90 percent of the smaller trout diet consists of these aquatic insect larval forms. Recommended selection includes Hare's Ear, March Brown, Montana Stone, Mosquito Larvae, Telico, Zug Bug, Montana and Stonefly. Nymphs are effectively delivered on sinking wet lines. What one needs is a sinking fly line that will get your fly down where the fish are, and keep it there during the retrieval. As long as your line is in still water, your line will sink at the maximum rate. But as soon as a line is pulled against the current or retrieved, the force of the current causes the line to plane upwards, thus reducing the sinking rate. As current speed, rate of retrieval or depth to be fished increases, so should the density of your sinking line. Lines for these applications include Scientific Anglers Wet Cell Brand: WC Slow Sinking—sink rate 1.25 to 1.75 inches per second; WB I Intermediate—sink rate 1.74 to 2.50 inches per second; and WC II Fast—sink rate 2.0 to 3.0 inches per second.

Wooly worms are artificial flies of great versatility. They will catch stream fish throughout North America. A survival angler selection should include Black and Grizzly, Olive and Ginger.

Streamers—Muddlers and Streamers duplicate small forage and fingerling game fish. Recommended selections include Fry Fly, Little-Rainbow, Brook, Brown, as well as traditional streamers—Dace, Grey Ghost, Mickey Fin, and Muddler Minnow (weighted and unweighted).

Flies of all types can be effectively fished with spinning gear with the aid of a "spin

float." Simply attach the 1- to 1 1/2-inch "bubble" 2 to 6 feet above the artificial lure. Colors of bubbles vary. Usually transparent plastic produces the best results. Others opt for translucent floats (orange, yellow) to aid the angler's failing eyesight. Some experienced anglers claim the brightly colored bubbles attract spawning trout, salmon, etc.

Casting—Basic fly rod/line casting involves three elementary procedures: 1) Standard Cast consists of the "pickup" commencing at 9 o'clock, a smooth, moderately swift backstroke to the 1 o'clock position, a pause until the line swings all the way behind, then the sprung back "loaded" rod is propelled forwards by wrist and arm motion. 2) Double Haul is essentially the standard cast with the addition of "hand strip" on pickup and during the forward presentation (this increases momentum). Both methods need a free space behind the angler almost as large as the area cast to. 3) Roll Cast provides delivery technique when obstructions behind prevent the more active casts being deployed. Essentially, the line is "whipped" out in concentric flowing circles—the line is stripped out a dozen or more feet in front of the angler on the water. The rod top is lifted and lowered to the water in one fast, smooth, flowing motion. The energy is transferred down in the line and delivery is made.

Tackle—Balanced tackle is important for every type of fishing and is especially critical in fly fishing. With casting and spinning gear it is the weight of the lure or bait that carries the line on the cast. However, in fly casting it is the line that carries the nearly weightless fly. Today's fly lines come in a variety of weights easily identified by number: 5 Weight handles small flies such as dries, midges and small nymphs under conditions where delicate presentations are required for wary trout; 6 Weight is the best all-around trout line designed to fish a variety of waters. It will easily cast a wide range of small flies such as dries, wets and nymphs under rugged conditions; 7 Weight handles a complete range of wet, dry, nymph and streamer flies when you are fishing for trout in medium sized lakes and streams; 8 Weight carries large flies and bass bugs, and is ideal for bass and light summer run steelhead; 9 Weight handles big bass bugs, streamers and bucktails and is designed for large bass, arctic charrs, steelhead, pike etc.; 10 Weight is designed to handle large wind resistant flies and bugs for medium-to-heavy fish: salmon, steelhead, pike, etc.

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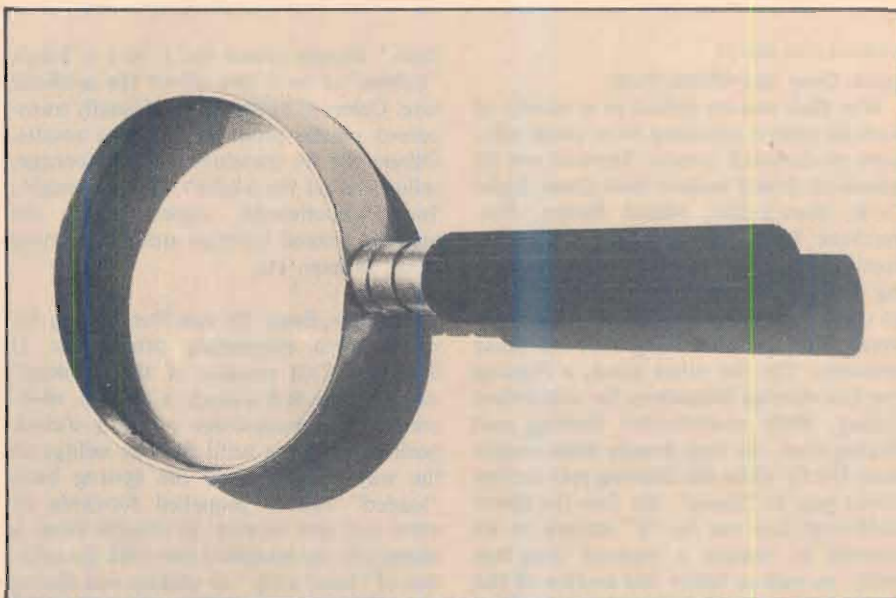
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-START A FIRE-

Continued from page 36



A magnifying glass two inches in diameter will scorch paper in bright sunlight but a larger lens would be needed to set the paper on fire.

magnifying glass. Under the right conditions, this will start a fire. It has some limitations, not working at night or in cloudy weather. A magnifying glass can also break, is made of glass and not plastic, and a plastic one is vulnerable to scratching, which will degrade its effectiveness if serious.

Another limitation is size. It must be at least three inches in diameter to gather and focus enough sunlight even under ideal conditions, such as the bright Arizona sunlight, the locale of these tests. Tests with a two-inch lens showed that it would scorch both paper and wood, although it would not ignite them. This is significant, as the Arizona climate, hot and dry, is ideal for starting a fire, and the bright sunlight is rarely softened by clouds.

Yet another limitation is that the user must look at his work, and staring at the bright spot of light is dazzling, especially without sunglasses. On the positive side is durability. Not counting possible breakage, a magnifier needs no fuel, has no moving parts to get out of order, and is not affected by moisture.

The parabolic mirror also uses sunlight. One type is sold as a solar cigarette lighter by *Radio Shack*, and costs only a few dollars. It consists of a metal parabolic mirror and a folding clip to hold the cigarette. It lights a cigarette in four or five seconds, in bright sunlight, but tests showed that it merely scorches paper. As with magnifying glasses, it needs bright sunlight, and the polished metal surface is more vulnerable to scratching than glass.

The reasons why a cigarette lighter and

paper doesn't are very interesting. The first is that tobacco, brown in color, absorbs most of the light and heat falling on it. Newspaper will scorch, but white paper won't, being too reflective.

The second reason is that cigarette tobacco is treated with potassium chlorate or a similar compound to provide oxygen when heated. This makes it easier to light and to keep burning, and is the reason why a cigarette won't go out when set down, as will a pipe or cigar.


This brings up the possibility of treating paper with potassium chlorate and using it as a starter. This does require storing a supply of what is essentially tinder.

Electricity—It's well-known that an electric current, passing through a fine wire, as in a light bulb, will produce both heat and light. This takes very little current, as in a flashlight. An expedient way of lighting a fire is to short out a battery with a piece of fine wire. This will produce a red glow, enough to light a piece of paper, but is not very reliable and will drain a battery quickly. This can cause a problem if the battery is needed for a flashlight or radio.

Liquid Fuel Lighters—A more modern method is the cigarette lighter that runs on liquid fuel, benzine. The most rugged and reliable of these, the Zippo, has a reputation of working under very adverse conditions. The spark comes from a steel wheel and a flint, held against the wheel by a spring. The flint wears, and needs periodic

Continued on page 70

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-SPLINTING-

Continued from page 25

fracture: Don't panic, perform proper splinting techniques, and talk to the victim; let the victim know that you are there to help.

Stretchers—How about transportation?

In a disaster situation, ambulances and fire department rescue teams will be in very short supply. You will probably have to move the victim yourself.

There are several excellent commercial stretchers on the market, if you can afford one. You might even locate a military surplus litter. More than likely, you're going to have to improvise. The *Red Cross First Aid Handbook* shows several good examples. Things such as ladders, doors or even lawn furniture can be used. The most popular improvised litter is the blanket/pole type. Most homes have the materials needed to construct it.

Basics—We have just looked at the basics of splinting. You will notice that each type of splint has its own pros and cons. There is no one "perfect all-purpose" splint. You must mix and match them to your own needs.

When I put together my own field first aid kit, I included two small wire ladder types along with full arm and leg air splints. They don't weigh much and they store well. At home I keep several arm and leg size cardboard splints handy. Because they are flat, storage is no problem. I'd like to get a Hare traction splint too, just in case.

Remember that just having the splinting materials on hand doesn't guarantee your competence. You must *practice! Practice! Practice!*

I suggest that, if you haven't already done so, get some sort of first aid instruction. Or better yet, enroll in an EMT1 course. The practice you will obtain is invaluable. Check with your local Red Cross, fire department, or community college for availability of these courses.

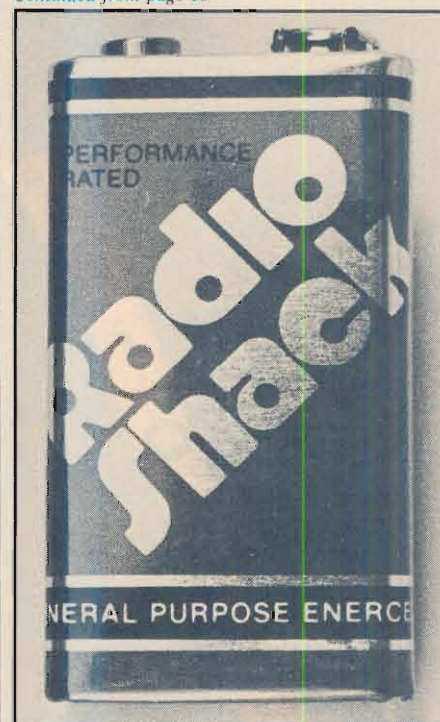
The time to learn is now, while you still have the time. Don't put off learning emergency medical procedures. The "Day After" will be too late. ●

SOURCES FOR FURTHER READING:

- (1) *Emergency Care*—Grant and Murray (EMT1 text)
- (2) *Red Cross First Aid Handbook* (Good basic text)
- (3) *Where There Is No Doctor*—Werner (A must to read)
- (4) *Emergency Care and Transportation of the Sick and Injured*—American Academy of Orthopedic Surgeons (EMT1 text)
- (5) *Dyna-Med Catalog*—Write for catalog —6200 Yarrow Dr., Carlsbad, CA 92008 (Good supply source)

-START A FIRE-

Continued from page 68



A battery's terminals can be shorted out with a fine wire for fire starting but this drains electricity.

replacement.

This device has a much longer-lasting flame than a match, a great advantage. It's also not as vulnerable to extinction by a breeze. The few moving parts and near indestructibility are important plus-factors. However, benzine lighters have two serious weaknesses for the survivalist:

They're vulnerable to moisture, which can impede striking the spark, and can also cause total malfunctions if the wick becomes wet.

Wicks, flint, and fuel need replacement. Replacing the flint is straightforward, requiring only removal of a screw plug and spring, and dropping in a new flint. Replacing the wick is more troublesome, as the cotton wadding must first come out and threading the new wick through the mantle is tricky. Fuel evaporates, and it's necessary to replenish the lighter from a reserve supply at least once a month. A practical point is that storing a pin alongside the cotton will provide a tool for threading the wick.

Butane Lighters—Butane lighters are the most recent development. They come in two quality grades, and two types. We have durable lighters, which are well made and highly finished like jewelry, and disposable lighters, plastic expendable models which sell for less than a dollar.

Durable lighters must be recharged from a can of butane, which brings with it

the extra complication of a loading valve which often leaks. This wastes fuel and may leave the lighter dry, depending on the severity of the leak. They also need new flints periodically, not a serious problem. Another sort of durable lighter uses a piezo-electric crystal, and never needs flints. The operating button actuates a small hammer which strikes the crystal, producing an electric current which goes through a transformer to generate a spark to ignite the gas. The button opens the gas valve. These lighters need periodic recharging with butane, with the same problem of an occasional leaky valve. Theoretically, the crystal lasts indefinitely, but if it fails, replacing it is impossible in the field. These lighters are costly, and moisture can short them out, quenching the spark.

Durable lighters which use a steel wheel and flint are also vulnerable to moisture, which will prevent the spark from striking. However, even after immersion in water, the lighter is undamaged as the gas supply is sealed and the water can be blown out of the mechanism. In tests, one of these lighters, of an otherwise nondescript Korean brand, lit after several minutes of shaking and blowing.

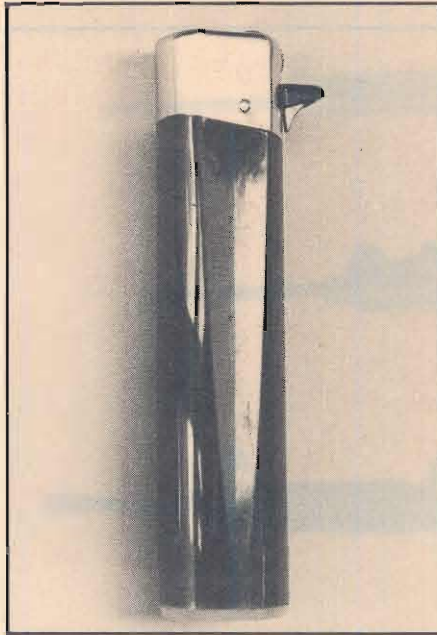
Disposable butanes are the most popular type sold today because they have several great advantages. First, they're cheap, costing less than a dollar each, and often they're on sale at several for a dollar. They're functional devices, not jewelry, and are inexpensive to manufacture. All use a spark wheel and flint, not designed for replacement. The gas supply goes before the flint wears out, and replacing the whole lighter is the key.

They're simple and rugged, designed to give many lights before needing replacement. The number of lights depends on the time the flame is lit, and the setting of the flame. Some have gas valves to regulate the size of the flame, which can range from too small to light a cigarette to almost as large as that from a propane torch, depending on the model.

To get an estimate of lasting quality, let's use the case of a smoker who consumes a pack, 20 cigarettes, a day. Let's assume his lighter lasts 30 days. This multiplies out to 600 lights. In practice, most disposable lighters last for longer than 30 days, and the number of lights adds up to thousands.

To light a fire, it's safe to assume that the flame will have to stay on for longer than to light a cigarette, and the number of lights will be less. In a survival crisis, it's unlikely that anyone will need to light 20 fires a day, and this will compensate for the added drain on the lighter.

Disposable butanes are very light, weighing about half an ounce each, and this makes carrying several easy. Their low



The disposable butane lighter was the best of the lighters tested. It's cheap, light, simple to use, relatively trouble-free, moisture resistant and expendable.

prices make stockpiling very economical.

Water tests failed to knock out any disposable butane for more than two minutes. Shaking out the water, blowing through the spark mechanism, and flicking the wheel a couple of dozen times always put them back into action.

Choosing Your Method—There are many ways of starting a fire with commonly available materials and devices. Some won't work, except under ideal conditions and in the most skilled hands. Others work, but with great difficulty, and are unreliable. Some are expensive, and others aren't, an important point for the budget-minded survivalist. Some are reliable, and resistant to adverse conditions.

The two best methods for the survivalist to consider are matches and disposable butane lighters. Matches are very cheap, very light, easy to use, and rugged in the sense that they don't break if dropped and will even resist crushing. They're very vulnerable to moisture, but protecting them is simple and practical.

Disposable butane lighters are as cheap as matches, calculating cost per light, or even cheaper if obtainable on sale. They're simple, rugged, reliable, resistant to adverse conditions, and best of all, disposable. It's unnecessary to rely completely on a lighter's dependability, although they very rarely malfunction. If one does, throwing it away and pulling another one from the pocket is simple and practical. They're so small and light that a pocketful will last many years. ●



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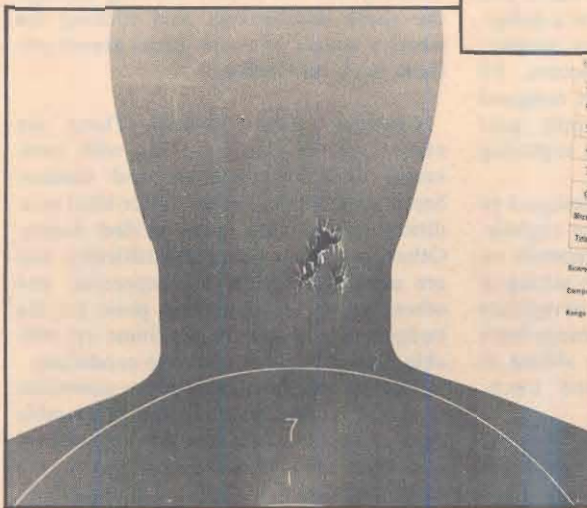
Continued from page 37



Colt's 9mm contender is shown here with competitors, the HK94, top, and the Uzi.



LEFT—The rear sight is a standard flip "L" type aperture set for 50 and 150 meters.



ABOVE—A filler block containing the 9mm magazine receptacle was placed into the AR-15 lower receiver. The magazines provide reliable feeding.

LEFT—The 9mm AR-15 is quite capable of shooting tight groups at reasonable ranges—50 to 100 yards.

number of rounds in the magazine. One portal is labeled "10" and the other "20." Extra magazines are available and a 32-round magazine may be available by the time this article is printed.

Testing—Firing the 9mm AR-15 was a very pleasant experience. The magazine was easy to fill to capacity and load into the weapon. Trigger pull is the typical military type pull, creepy and stiff, but not a significant hindrance. The carbine handled just like its rifle-calibered predecessors except with a lot less recoil and muzzle blast.

Accuracy was impressive. This 9mm carbine was as accurate, if not more, than any other comparable firearm on the market. The particular weapon that was evaluated provided some very tight groups, and no malfunctions were experienced. If you're a reloader, you will be happy to know that the empty cases were not bent or deformed in any manner.

Conclusions—The 9mm AR-15 is a very good rifle, if you like the weapon system and the idea of having a rifle that fires pistol ammunition. There are some who

would question both. But if you are the type that likes either or both, you will definitely want to look this baby over and think seriously about getting one.

You may want to note that many inexpensive AR-15/M16 parts and accessories are interchangeable with the 9mm AR-15. No doubt, numerous after-market accessories will be available soon too.

Whether you're a camper, hiker, pilot, boatsman, security guard, home owner, plinker, or a down to earth survivalist, this 9mm specimen should be carefully considered. ●

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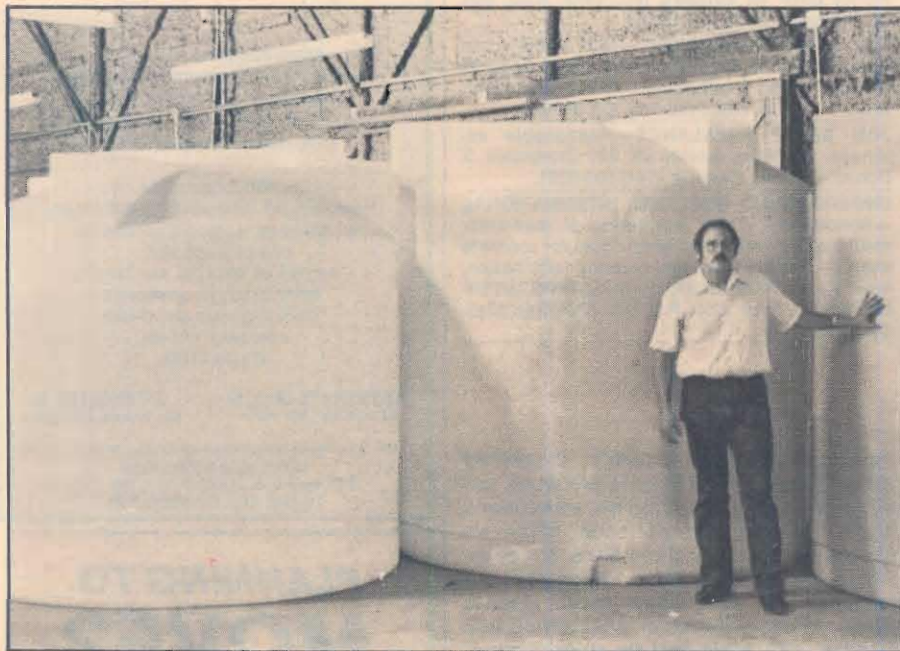
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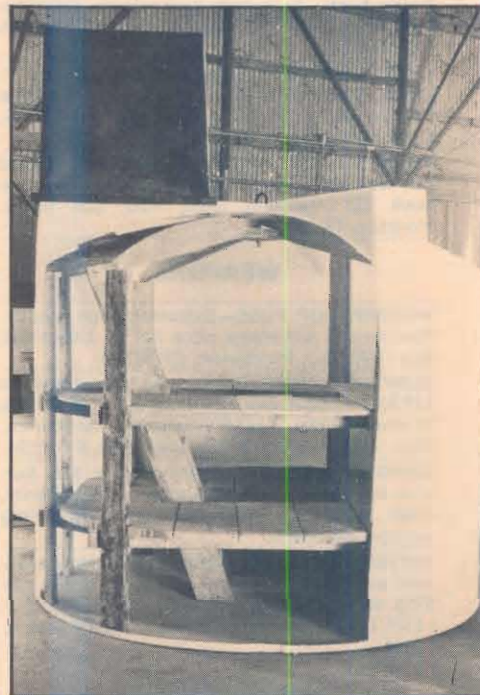
TERRA VAULT

This large, one-piece hard plastic tank can be buried and used as a 'root cellar' or emergency shelter . . .

Staff Report



ABOVE—Phil Atkinson, general manager of Terra Bella Industries, stands next to uncompleted Terra Vaults.



RIGHT—A cutaway view of the Terra Vault shows the interior shelving and ladder, which are made of redwood in models for sale. On top is a polyethylene hatch.

WHEN THIS MAGAZINE published a short article in its July 1985 issue about the Terra Vault for survival or storage, the manufacturer, Terra Bella Industries of Terra Bella, California, received a strong response from interested readers across the country.

The Terra Vault is a large cylinder made of heavy duty molded polyethylene that won't rust or rot. It comes in several sizes and capacities but the standard size is 90 inches in diameter by 80 inches high excluding a lockable polyethylene or steel hatch. This model has more than 260 cubic feet of storage or living space and includes redwood shelving and ladder. Prices start at around \$2,000. Larger models holding up to 2,700 gallons are also available.

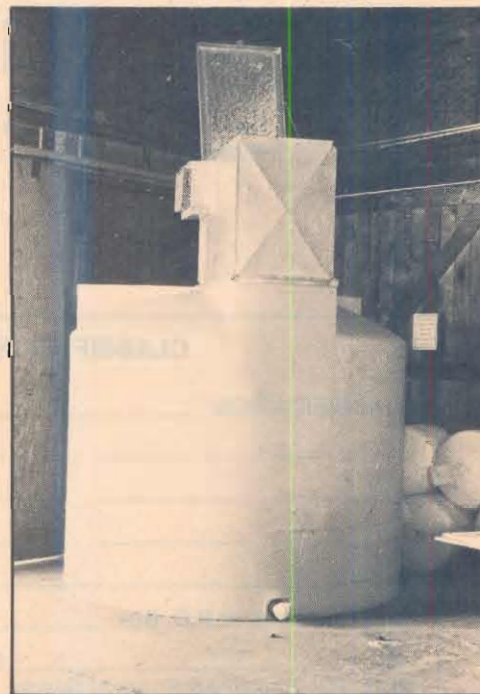
Terra Bella Industries primarily ships these vaults, which can be buried in a backyard or retreat for food or liquid storage or protection against tornadoes, earth-

quakes or other disasters, to purchasers near its plant in California's San Joaquin Valley. Shipping such a large item across country adds greatly to the cost.

Due to the volume of interested potential customers located outside California, Terra Bella Industries General Manager Phil Atkinson is attempting to form a company that will arrange with other plastics manufacturers around the country to produce the Terra Vaults, which can then be shipped closer to more customers, reducing substantially the shipping costs.

In the meantime, if you are willing to pay for the cost of transporting the Terra Vault to your desired location, you can still purchase the model of your choice directly from Terra Bella Industries.

For more information about the Terra Vault, contact Phil Atkinson, general manager, Terra Bella Industries, Inc., Dept. ASG, 19513 Road 236, P.O. Box 209, Terra Bella, CA 93270. ●



Here is a completed Terra Vault with galvanized steel hatch.

Continued from page 50

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Adventure Supply	70
Alpha Team	71
Steve Arnold's Gun Room	66
Assault Systems	C/2
BMF Activator, Inc.	59
Beeman Precision Arms, Inc.	59
China Diesel Imports	C/4
Core Resource	5
The Cutlery Shoppe	8, 37
Desert Publications	47
The Dutchman	35
Dynamit Nobel of America, Inc.	6
The Edge Co.	69
F.I.E.	61
Feather Enterprises	15
Great Lakes Distributing	45
Guaranteed Distributors	44
Guillory & Assoc.	45
House of Weapons, Inc.	71
INCO	10
The Journal of Civil Defense	62
K & K Thompson Bookseller	70
KHK Productions	61
Kaufman's West, Inc. Army & Navy Goods	3
Lifeknife, Inc.	67
M & M Enterprises	9, 39, 40, 41, 42, 43
Midwest Sports Distributors Inc.	49
Nuclear Research	73
Paladin Press	7
Pocket Survival	51
Provisions Unlimited	21
Quartermaster Sales	29
RCU Company	71
Ram-Line, Inc.	22, 23
Running River Supply	66
Smoky Mountain Knife Works	71
Southern Survival, Inc.	67
Special Weapons Product	70
Sport Access-Ammo Dump	63
Spyderco	65
Survival, Inc.	18, 19
Survival Books	65
The Survival Center	11, 12, 13, 14
Yellowstone Basin Properties	70
Zesto Therm	62

Make It Yourself:

NATURAL FIBERS

Wherever vegetation is found there are weavable fibers in abundance . . .

By Bill London

NOT ALL CONTAINERS are made of metal or plastic; clothing is not necessarily leather or cloth; and not every dwelling requires lumber or cement. Many survival necessities, from houses to garments and from fishnets to baskets, can be made from natural fibers—roots, bark, grasses, vines, and stems. In the absence of all manufactured items, and even all animal products, knowing where to look and what to find could keep you warm, dry, and alive.

Wherever vegetation is found, whether in forests, marshes, deserts, or jungles, there are weavable fibers in abundance. Ideally, they are long and whip like, sturdy but flexible, and of uniform thickness. Thin roots can be used whole, and thicker roots can be split lengthwise. The inner bark of many tree and brush species can be cut into long weavable strips, or the fibers in the bark can be separated and spun into a rough yarn. Almost all pasture and marsh grasses can be used as bundles or twisted (for pliability and strength) into cords. Vines of all kinds, and supple thin stems, make excellent withes (a basketmakers' term for the flexible and easily woven fibers used in their trade). In other stalks, connective strands can be separated to be spun into cords.

After the fibers have been located and gathered, they can be combined into useful shapes—rounded containers like baskets and hats or flat rectangles like mats and shawls. That combination (or weaving), the same for almost any purpose, interlaces two different sets of strands, perpendicular to each other. One set, generally the stiffer ones, forms the foundation of the object and is called the warp. The weft are the fibers woven into the warp frame. Two simple methods, the twining stitch and the plain weave, are the most commonly used to combine warp and weft.

Twining—The twining stitch is done without a loom on any flat surface. The warp is a set of bundles or cords lying side by side. Two weft strands are sewn simultaneously, one over and one under each warp, and crossed between each warp. Depending on the use of the object, the number of weft strands can be so numerous as to be touching each other along the length, or so loosely woven that the cords are placed at 1- or 2-foot intervals.

Plain Weave—The plain weave often requires a loom, which can be as simple as two poles lashed horizontally between tree trunks. The size of the loom will determine the maximum possible size of the finished material. The full length of the warp in the loom can not be used (the cords in the last foot or two become too tight to be woven, so the distance between the horizontal poles should be lengthened accordingly). The weft cords are singly laced in and out between the foundation strands. Each weft is interlaced opposite the one below it. The plain weave is also used (without a loom) to make baskets and other rounded objects.

Garments—You need not shear a sheep, tan a single hide, or even locate any cotton balls to create simple garments that will keep you dry and warm. Ponchos, sleeveless jackets, skirts, and vests are basically rectangular pieces of material easily made of almost any fiber yarn. A fiber cloth with a headhole is a poncho. Without the hole, but with the addition of a belt tie, it becomes a skirt. With insulative padding (like the cottony tufts found in cattail seed heads) and an inner layer of fur or other fibers, a wintertime garment is created.

Because of the range of choices for both garments and yarns,

the description of the clothing to follow should be considered only an example. This warm and durable (though itchy like wool) outfit can be duplicated with different materials, and these materials can be made into very different, though equally serviceable, garments. This is a guide only, to be adapted to climate and available vegetation as needed.

A shirt, shawl or vest can be woven of a thick yarn made of the long fluffy fibers found in the middle layer of the bark of the Western Red Cedar tree in combination with cords made of the strands found in flax (a tall annual plant). To separate and fluff the individual filaments found in the cedar bark, the shaggy outer layer must be discarded first. Then the bark is beaten until the fibers are loose. In our technological age, this is easily done by laying the bark on a driveway, where the tires will pulverize it. Animal hooves, hammers, or human feet or hands will also work. Final loosening by hand bending and twisting (the old washer-woman technique) is required. Then the fluffy fibers (feeling remarkably like wool) can be twisted into a rough yarn by rolling on a pantleg or by spinning with a simple drop spindle.

The cord from the flax plant (known as linen) is made by first separating the strong connective fibers from the useless pith and straw. This separation process (called retting) first requires that the weaker plant material be allowed to rot. Bundles of flax stems (or the stalks of many other tall annuals) can be exposed to weather—lain in a field, kept wet and turned periodically. That is a slow process, however, and can be hastened by placing the bundles in water. Slowly moving warm water is ideal.

With either submersion or above ground retting, timing is crucial. The stalks are done when the straws, but not the strong fibers that run the length of the stems, are separated and rotting. Those fibers are made flexible (and the useless vegetable matter discarded) by beating the stalks with a mallet over an edge. Using a rough comb (a board with slots cut into it or nails pounded through it), the strands are cleaned. The last step is to spin (by twisting, rolling, or using a drop spindle) those filaments into a cord. Durable ropes of any length can be made by braiding cords or retted strands.

A skirt and shawl can both be woven on a simple loom. After the dimensions of the finished garments are established by using a pattern or just duplicating another garment, the linen cords (to become the warp) are tied on the loom frame. The warp is as wide, but several feet longer, than the desired end product. The cedar yarn weft is then woven between the cords.

On one side the weft is left long, hanging beyond the linen cords, to become a fringe in the finished garment. With the weaving complete, it is taken off the loom and the loose cords tied in (except for the end cord which becomes a belt). A vest is made in a similar manner, except that no fringe is left and both end cords are left loose. To soften where rough cedar bark yarn meets tender skin, fur is sewn on those edges.

A hat is made of folded birch bark. In the spring and summer when the sap is moving in the trees and removal is easier, cut strips and patches of bark off the trunks. Exercise care since the trees can be killed easily. If the bark is then wetted and warmed, it will separate with gentle hand pressure into its many constituent layers. (An aside: for fire-starting, thin strips or shavings of birch bark will ignite, even if damp.)

Several of the thin layers are the right thickness for hat or basket making, while roofs, canoes, and ponchos are made from



This woman is wearing garments made from cedar and birch bark.



LEFT—The mat shown here is of cattail grasses woven with stout fiber cord. The three baskets in the foreground are of folded birch bark. The next three are made of diagonally woven strips of birch bark. The tray and basket in the background are woven from willow branches.

BELOW—A basket is made by beginning with a simple spoke shape and then spiralling outward with more willow branches.



thicker bark. After cutting the bark to the proper shape (and keeping it supple by warming and wetting), just fold it and sew it together using a thin cord or a flexible root or vine. The same technique will produce waterproof pails and other containers (which are only upside-down hats).

A sandal is formed using four stout cords as the warp frame. Other short sturdy ropes are used for the weft. Side loops (used to lace the sandal onto the foot) are formed in the outer warp cords. Bundles of grass or cattails can also be used for the weft, though the grasses are not as durable as retted fibers.

Clothing made from cedar bark may seem extremely exotic today, but that fiber and many others were commonplace in North America several centuries ago. Indians in the Pacific Northwest, for example, regularly wore cedar bark clothing.

Basketry—The art of weaving containers for gathering food, drying fruit, catching fish and storing almost anything is another traditional craft that uses unusual fibers. Some native artisans were able to weave grasses so tightly that their baskets held water. But even without that kind of skill and training, simple baskets, like the classic basket woven of willow stems, are actually easy to make.

Willow shoots are the basketmakers' first choice: long, supple, uniform, sturdy, and delightfully scented. Flexible stems (the technical term is *withes*) of most broad-leaved bushes that grow several feet in length in one season are good candidates for weaving, too. Autumn is the preferred time of harvest because the sap is not flowing (less damage to the plant) and the leaves have fallen (making the stems more visible). Generally, stems more than one-half inch in diameter are too thick and inflexible, and stems less than two feet in length are too short. After cutting, the stems are allowed to air-dry, but just before use are soaked to regain their flexibility, then kept moist until woven.

The foundation (the warp) of the basic basket is the initial crossed pattern of first stems (resembling the spokes of a wheel). Cut slits in six long withes and insert a half-dozen others through the original six. Then begin spiralling outward with other stems, weaving the weft over and under the framework, gradually fanning out the spokes. Use the thickest shoots first, and remember to keep the weave tight as the basket will loosen as it dries. When one willow branch is almost woven in, insert another beside it to continue the spiral.

When the basket is large enough to assume its rounded shape,

tie all the spokes together at the top. Weakening the stems at the bending point by pressing them with a pliers or jabbing them with an awl will insure the creation of uniform walls. Add more spokes as the spaces between the original framework stems widen. Continue to weave in additional withes until the wall has reached the desired height. For a handle, additional warp stems must be added and woven in. And for a rim, weave the remaining spokes back into the basket. Then after trimming off loose twigs, it's done.

Of course, there are endless variations on this theme. Thin strips of wood or bark, as well as roots and vines, can be used for the warp. Grasses and bark and retted yarns can be substituted for the weft. Combinations of different fibers can produce pleasing patterns. The shape can be modified to form packsacks, cradles, or hats. Fishing nets and fish traps also can be woven from vines, stems, or grasses to be placed in streams or hand held.

Coiled baskets are made differently. The warp is eliminated entirely and the weft is just wrapped around itself and sewn together. A thin bundle of grasses (kept continuous by the constant addition of new fibers) is usually used, though pine needles, roots and vines can all be used. A separate strand of thin and supple grass (the comparable commercial product is raffia, made from the strings found in African palm leaves) is continuously wound between the two outer layers of the spiral sewing it together.

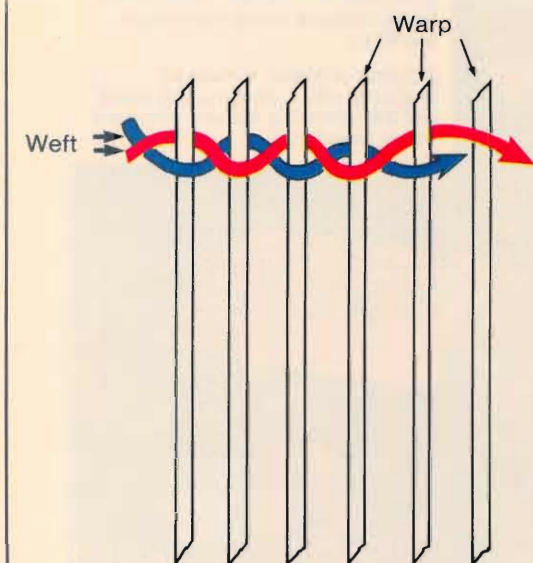
Drying racks (for preserving meat, fish and fruit) are most easily begun by making a lashed or nailed wooden frame of the desired size. Next, attach stems or thin strips of wood or bark to the frame for a warp and then finish by weaving similar materials for a weft. Similarly constructed panels can be used for room dividers or interior siding.

Shelter—The grass hut is not just for the tropics. Housing—from permanent dwellings suitable for northern climates to temporary shelters anywhere can be built with grasses, bark, and roots.

Fibers can be used to create excellent roofs and walls, but a support structure of nailed lumber or lashed poles is required. Then the fiber mats or bundles can be tied onto that framework. The process is very similar to roof thatching, a traditional British craft.

Thatching is the use of one-foot diameter bundles of reeds, ▶

TWILING STITCH



Grasses, vines, inner stem fibers (hemp) and bark are common materials for making clothing or other items.



Here is an exterior view of a grass shack showing wall construction. The wooden structure on the left is an entranceway.



A cone-shaped tipi is made from mats of buffalo grass lashed to a pole frame. Repeated layers of mats makes the shelter waterproof.

bull rushes, or straws for roofing. Thatching is still practiced today, not only because the result is beautiful, but also because it is practical, since a straw roof lasts about 15 years and a reed roof about 70 years.

The fiber bundles are tied onto battens or purlins on the roof. Attaching thatch to a continuous (as opposed to the widely spaced battens) wood roof is never done because the lack of air circulation would rot the fibers. The bundles of thatch are tied on like shingles, from the eaves upward and well overlapping the bundles below. The bundles are beaten and shoved tightly together then clamped down with a horizontal board over the entire course. The final roof is about 18 inches thick and so heavy as to require building the supports with 2-inch x 8-inch lumber on 16-inch centers. A roof with a shallow pitch will leak, so a 50-degree slope, or steeper, is required.

Two different grass shelters, the buffalo grass tipi and the meadow grass shack, reveal two distinct methods of fiber construction. The tipi is transportable with a lashed pole frame and grass mats used for siding. The shack is a permanent dwelling with "shingles" of mixed pasture grasses tied onto a pole framework.

The pole frame of the tipi is identical to the conventional canvas tipi. However, the canvas has been replaced with wide mats (about six feet by three feet) of buffalo grass, which is a long-stemmed marsh grass. The mats are made by sewing (with a twiling stitch) many thin (about one inch in diameter) bundles of grass with linen cord. The mats are loosely woven. There are three cords spaced across a three-foot width. As with conventional tipis, the irregular opening at the top allows smoke to exit. Repeated layering of the mats (overlapped to allow for runoff) and the steep pitch of the roof make the shelter watertight.

The pole frame of the grass shack is circular and 22 feet in diameter. Vertical poles about six feet tall were joined together with other horizontal poles. Then two dozen pole rafters were lashed to the walls to meet at a common center above the midpoint of the floor. The roof looked like a wheel with the rafters its spokes. The roof and walls were made of bundles of meadow grasses that were folded over and then lashed onto cedar branches. The resulting "shingles" were tied onto the frame, overlapping one another.

The north-facing wall is thicker (18 inches) than the south-facing wall and the roof (both six inches). The dirt from the interior was excavated out to a depth of two feet and that was

carried outside and bermed against the walls. Holes and cracks were stuffed with moss and handfuls of grass. Insulated stovepipe was run through the roof.

The roof was too flat to shed water well (about a 20-degree pitch) so a layer of canvas was needed on the exterior. The grass walls quickly became a haven for rodents and insects, but the shack was a warm and practical no-cost dwelling for a winter in the Northern Rockies.

As with the cedar bark garments and the woven willow basket, these two shelters are only examples. Any long grasses or reeds, either bundled or woven into mats, when overlapped thickly on a steep pitch, will repel water and insulate adequately. Of course, on walls near or touching the ground, the grasses will rot and become infested with all sorts of wild creatures. Also, pieces of bark (cedar or birch, for example) can be tied or nailed onto pole frames for walls or roofs. Mats can also be made of almost any other fibers, like cedar bark yarn or bundles of stems.

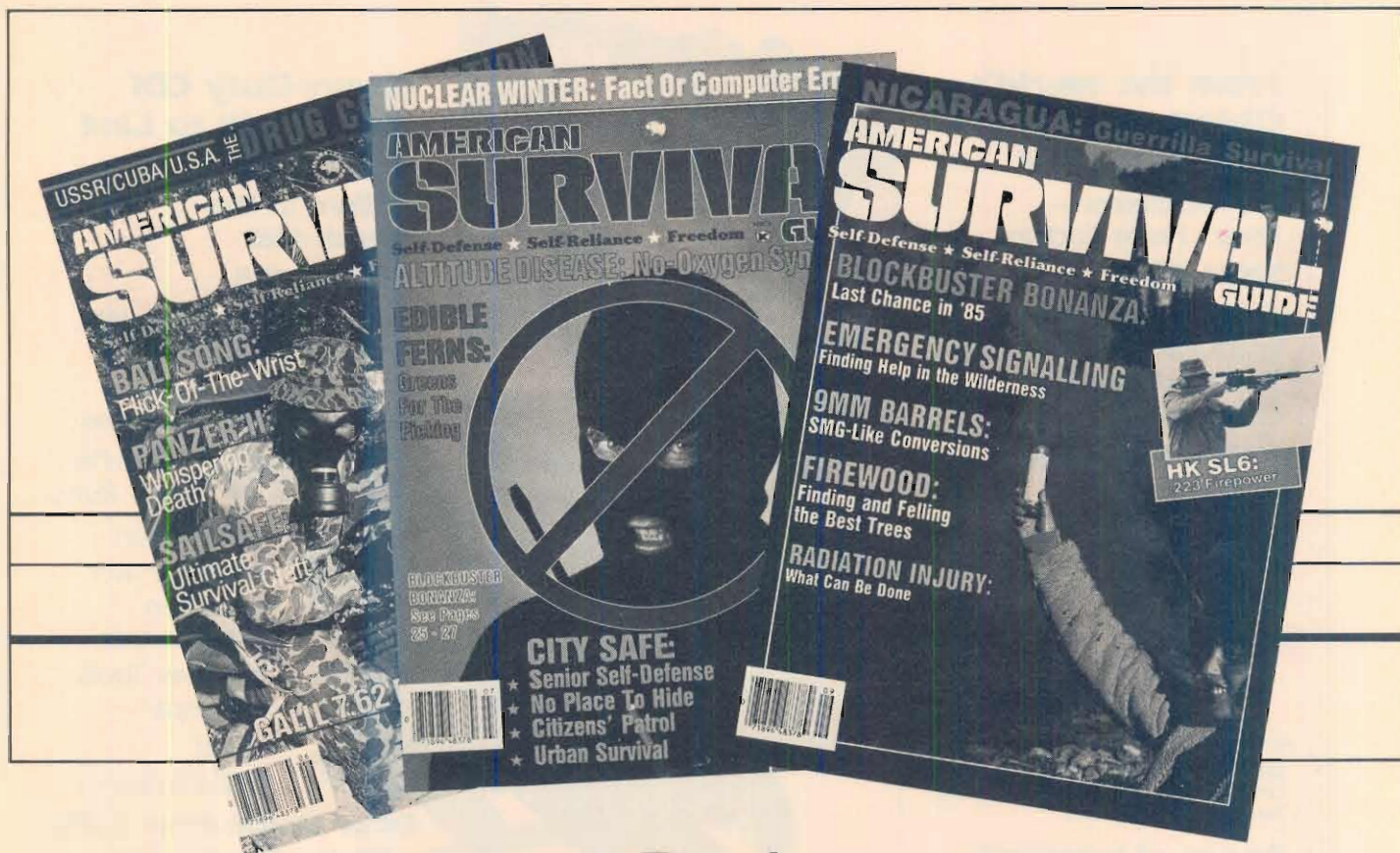
Other Items—Other useful household items can be woven, too. Fences and corrals can be made with long stems woven between a vertical warp of fenceposts. Mats can be used as room dividers or beds. And hammocks can be woven with retted cords or vines.

Imagination—Because of the incredible variety of plant life in each ecosystem and the numerous potentials for each fiber once it is located, a listing of the possible, or even the best, uses is foolhardy. What is needed for survival is not a list but a few ground rules, some examples, and the most vital ingredient, imagination.

After recognizing what you need (a shelter or a rope or a poncho, for example), look in your immediate environment for the flexible fibers that you can use. Long grasses, reeds, rushes, and cattails are often found in abundance in marshes. In forests, viney plants, bark, and tree roots (which are more flexible generally than the roots of bushes) are likely. In open areas, look for long shoots in bushes and the tall stalks of last year's annuals (nettle or hollyhock, for example) that contain strong connective fibers.

Gather large amounts of anything that might be weavable and start experimenting with different weaves, patterns, and combinations. Whatever you make with these fibers will rot, shred or separate rather quickly. But the next time it will be easier. And in the meantime it may be just what you need to save your life. ●

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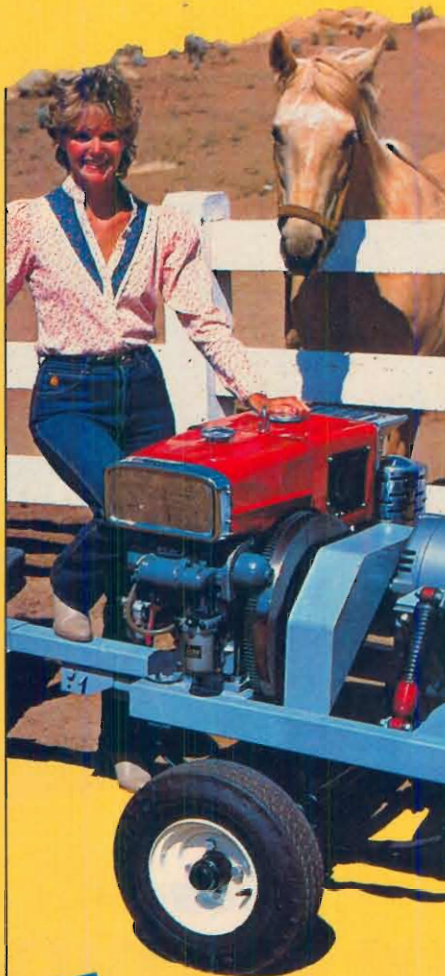
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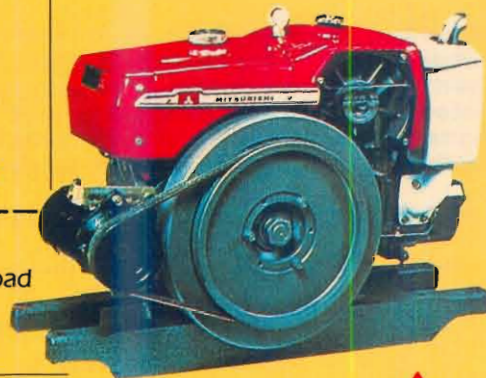
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